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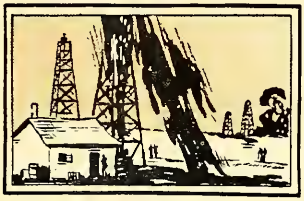
Louisiana Conservation Review



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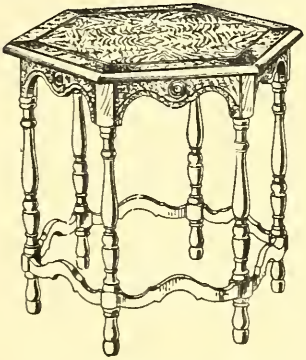

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Louisiana
CONSERVATION REVIEW

Published by the
DEPARTMENT OF CONSERVATION
ROB'T S. MAESTRI, Commissioner

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CONTENTS

Winter Feeding of Birds,
By Townsend Godsey 3

Farmers as Conservationists,
By Armand P. Daspit 5

Research on the Habits and Relationship of Wild Life
By Paul G. Redington 7

Industrial Progress for Louisiana,
By L. I. Powell 9

Forest By-Products,
By V. H. Sonderegger 10

The Louisiana Bull Frog Industry
By C. L. Lambert 11

Establishment of Forests by the States,
By L. S. Holmes 12

Public Interest in Conservation of Fish Growing 13

Secretary Wilbur Says Conservation is Chief Task of Interior Department 15

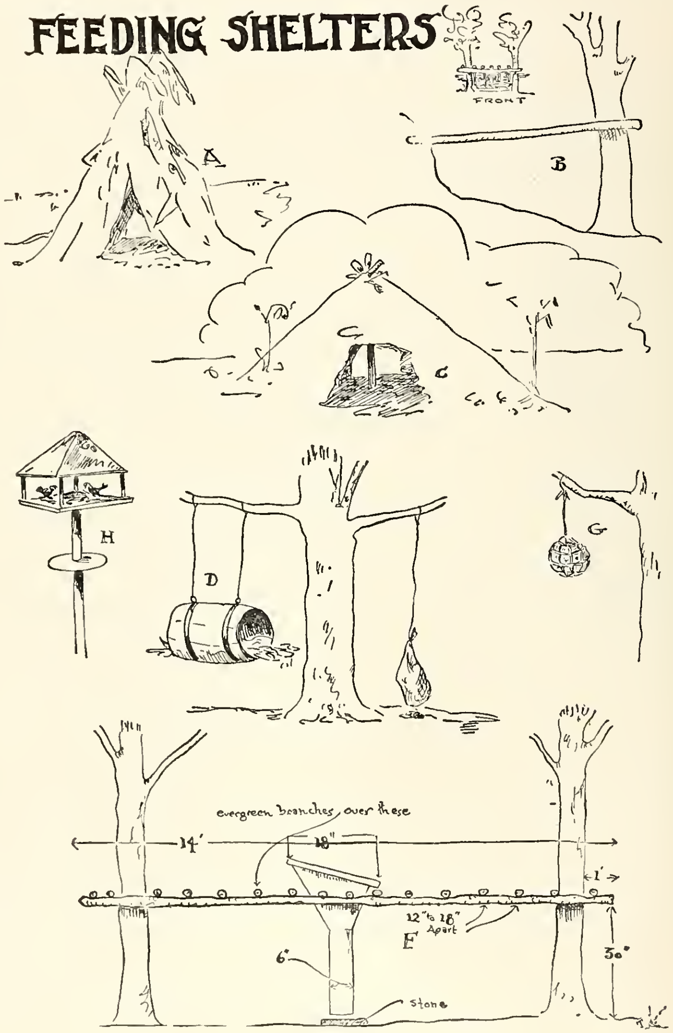
The American Game Protective Association News Service 18

Louisiana's Material for Paper Making Held Unlimited 20

Editorials 22

Mardi Gras in New Orleans (Poem),
By Estelle Verjie Cottman 28

The Needs of the Nation's Engineers 33


FEEDING SHELTERS
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evergreen branches over these
14'
18"
1'
12" to 18" Apart
E
6"
30"
stone

Winter Feeding of Birds

By TOWNSEND GODSEY
Director of Public Information, Missouri Game and Fish Department

THROUGHOUT Missouri's severest winter seasons, sportsmen, Boy Scouts, farmers, and all nature lovers can be of great aid in the feeding of game and wild birds. Each year reveals an increased interest in this commendable work, but helpers in all sections of the state must be enlisted in the conservation program if the game and wild birds are to come through the winters in such physical condition as to allow satisfactory natural propagation during nesting seasons.

Many fine game and other birds will die during Missouri's winter unless they are provided with feed. And every bird that dies during the winter means several less birds to see and hunt and help the farmer the following summer and fall. Hunters need not expect to find quail in their communities during the fall season if the brood stock starves during the winter.

The best feeding process in most all parts of Missouri is the use of shocked corn remaining in the field. Shocks can be opened up one by one as necessary, providing a practical self feeder. (Figure A).

Grain is most beneficial if placed in pits shoveled down to earth or placed on hard-beaten roads not used by motor cars, or along well packed railroad rights-of-way where trains are few, beneath grapevine shelters, brush lean-tos (Figures B and C), and in sheds not used by poultry.

The feeding of shelled grain in loose snow is not advised, as it rapidly sinks out of sight and becomes unavailable to the birds. A pit should always be scooped, shoveled, or kicked out to the ground except where there is a heavy ice crust.

Shocked corn, mill screenings, haymow chaff, and dry table scraps that are non-freezing provide excellent feed.

It is best to locate where the birds have been frequenting and place the feed there. Game birds should not be fed among domestic poultry as they are easy victims of poultry diseases. Feed the birds in the yard if they come there but keep them away from ground contaminated by chickens.

Feed should be placed in the shelters regularly so that the birds will make it a habit to frequent the feeding places. Quail feeding stations should be close together as the birds do not range far. There should be one feeding station on each forty-acre tract. Feeding shelters should not be located in such a manner as to be traps in which the birds would be caught by predatory animals. (Figure D). An old barrel with both heads knocked out, suspended from a tree and partially

PELICAN BREEDING COLONY ON EAST TAMBALIER ISLAND, LA.
The photographs show nests and eggs, and other views of the colony of 13,000 birds nesting there.

filled with some unthreshed wheat or other grain will provide this vermin-proof feeding station.

Prairie chickens range from one to five miles and in counties where this bird is found, feeding stations should be provided. Corn is suitable feed for these birds. Corn is also suitable for the wild turkey in sections where the mast crop is light.

A very satisfactory feeding device can be made by use of cloth or paper sacks, filled with grain and suspended from a tree limb, fence rail, or brush pile. (Figure E). A small hole must be made in one corner of the sack so that the grain can trickle to the ground or can be picked out by the birds. This feeder can be easily made up by the sportsman before going into the field, only a few minutes' work being necessary to put the feeder in operation.

Pheasants will travel far if good feed conditions do not prevail. Unless they have ample feed they will leave the sections in which they have been liberated. If the sportsmen in sections where this bird has been liberated would have the birds remain in their community they had better provide feed. Otherwise some more enterprising community will benefit by the move. Corn and other grain provide the necessary feed for pheasants.

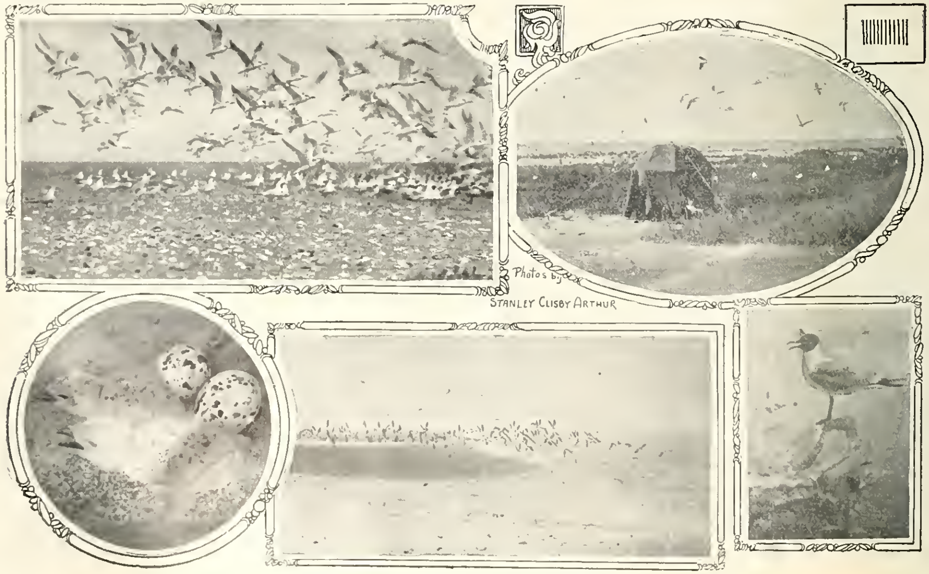
Where cattle or deer are likely to eat up the grain placed out for game birds, the hopper type of shelter serves best to save the grain for the feathered gamesters. (Figure F). Such feeding shelters can be built with little expense and effort but can be used from season to season.

Game is not frightened when it approaches this type of shelter and feeder. Vermin has little opportunity to catch game while it is feeding and snows do not cover up the feed. This type of feeder will accommodate any kind of feed necessary for small game and birds in nearly any locality. The flow of the grain can be regulated by the space between the hopper and ground. It is well to place supports at each side of the feeding hopper so that when heavy snows come the flow of grain will not be shut off.

Grit should be provided in cases where the birds are unable to procure this necessary material. Without grit, birds will die with their craws filled.

The city dweller can help with the bird feeding, as many of the insectivorous birds are to be found within the city limits. Shumac and weed seeds are relished by the cardinals, slate-colored juncos, tree sparrows, and the red-poll linnets. Hairy, downy, and the redhead woodpeckers prefer nut meats. The white-bellied nuthatch, tufted titmouse and black-capped chickadees like to eat from feeding trays. Cracked corn, barley and wheat provide excellent feed. The horned larks, lapland longspurs, snow buntings, goldfinches, purple finches and the redpoll linnets like seed of most any kind. The cardinal is partial to whole corn as he cracks it himself and extracts the heart.

(Continued on page 30)



LOUISIANA SEA BIRD COLONIES
Above: Royal Terns in flight and photographic blind used in securing pictures. Below: Eggs and young of Black Skimmers; Black Skimmers in flight and a Laughing Gull.

Farmers as Conservationists

By ARMAND P. DASPIT
Director Division of Fur and Wild Life

CONSERVATION officials of Louisiana, ever on the alert to adopt any new idea which promises to aid in the conservation of the wild life of the State, are now seriously thinking of associating the farmer in their never ending struggle to preserve the game of this section of the country from the inevitable extinction which would occur should the Department relax its vigilance.

Wild life refuges, now maintained and adequately guarded, have proved of tremendous value in this respect, but the immense advantages to be obtained, if Louisiana farmers could be induced to become partners in this worthy enterprise, deserve the whole hearted cooperation of sportsmen.

HUNTING DUCKS

By S. W. Dixon

Give me a gun and some old marsh,
And the whistle of wild ducks' wings,
When the roar of my shotgun wakes the morn
And a hundred flying things.

The mud hens patter across the pond,
And the teal comes whizzing in,
and the greenhead jumps from the grass beyond,
And the hunters all begin.

With a pop, pop here, and a bang, bang there,
The opening season's sign,
And the next duck comes from we know not where,
Across the gray sky-line.

And we judge the speed and the proper lead,
As only a hunter can.
There's honor, too, and a comradeship
Among the hunter clan.
There's a swapping yarns and a friendly tip,
And a meeting of man to man.

So give me a gun and some old marsh,
And the whistle of wild ducks' wings,
When the roar of my shotgun wakes the morn
And a hundred flying things.

—*Pasque Petals.*

To make the project interesting to the farmer it will be necessary to show him where he will benefit financially for his aid and effort in this respect. In three states, New York, California, and Pennsylvania, efforts along these lines have already been inaugurated and the farmers are quite generally well impressed with the scheme.

For instance, in California, the Division of Fish and Game has already "checker-boarded" the state with over five hundred quail sanctuaries on private farms, where means have been devised to provide for the feeding and watering of wild life and to protect it from its natural predatory enemies.

It is inevitable that if the various species receive this intimate and constant protection from farmers throughout the State, the natural increase is bound to be very large, and the threat of extinction would be permanently abolished.

If the farmer can raise eggs from poultry, he can also raise eggs from wild birds, and as this natural increase occurs, the farmer could add very materially to his income by selling hunting privileges during the open season on property which he controls. The absolute assurance that game is there should make such privileges easy to sell.

For some time sportsmen have, individually, taken care of very young birds and even raised fledglings from eggs, which has in a manner aided in the conservation of certain species. But it must be at once apparent how much better such efforts could be conducted by the farmer, on his own property, and with but little loss of time from his ordinary affairs. If shown where the raising of wild life will add substantially to his income, it will not be difficult to convert the farmer to the conservationist's viewpoint.

The Department of Conservation of New York, experimentally, during 1930, distributed 14,555 young birds and 171,771 eggs, but most of these were given to sportsmen, many of whom, because of business affairs, have not the time to give conscientious and continuous care to such charges. The farmer, on the other hand, could easily make such duties interlock with those connected with his operation of his farm.

The rapid increase of wild life on his property would soon put him into a position where he would be the proprietor of a very desirable shooting preserve which well-paying sportsmen would be glad to patronize. He would not only find such efforts of distinct advantage to himself, but he would also, in the aggregate, become a mighty force in conservation and aid very largely in preserving for the future game which would without such aid rapidly approach extinction.

With every farmer a militant force, ready at all times to obstruct illegal hunting, and at the same time fostering and protecting on his own land various kinds of wild life, it would result in really making the farmer an agent of the conservation forces, make for a wider and closer observance of the law, and as a result a vast increase in game wild life.

That protection is needed in every possible direction is amply demonstrated by a survey of the numerous arrests which conservation agents make each year in Louisiana. To cover every section of the State at all times with a qualified agent would mean the employment of such an army of men that the expense would be utterly prohibitive. But if the aid of the farmer may be enlisted in such a worthy undertaking, a great stride forward will be made in the perpetuation of wild life in this State.

Hitherto, the means employed to protect wild life has been through the imposition of fines, and at times imprisonment for offenders. But this is the first time the idea has been advanced of rewarding men for protecting wild life rather than punishing them for destroying it.

With the farmer very generally interested, the whole State would become what would practically amount to a game refuge, with the farmer watchful at all strategetic points and the game as safe as human laws can make it, from both predatory animals and conscienceless hunters.

It would doubtless be found, also, that with the natural increase of wild life thus going on without molestation, it would be possible in time to enlarge bag limits and, perhaps, even to extend the shooting season. Certainly, it would at least provide many, many more birds and thus furnish the sportsman with added opportunities and practically no disappointments.

Wild life, thus conserved by the farmers' cooperation, would increase much more rapidly than it would even in its natural habitat, because in the latter case it would open to the ravages of its natural enemies, which would be eliminated to a large extent on cultivated lands.

In these days when every body is talking about the high cost of living, especially in the matter of food, any enterprise that aims at a larger production of food stuffs will be viewed with the most manifest approval. And it must be admitted that there are but few articles of diet that may compare with food furnished by the wild life of the forest and stream. The farmer in this scheme, has absolutely nothing to lose and everything to gain. His hostly duties to his wild life guests will be not at all onerous, nor will they interfere with his regular avocation, but will nicely dovetail with it.

The income which the farmer will enjoy from his home game supervising activities will, or should be, reflected in the balance which he maintains at his bank. Sportsmen, if assured of good shooting and plenty of game on the farmer's little preserve, will not be backward with their financial contributions to farmer prosperity.

And, aside from this practical aspect of the scheme, the farmer will have the comforting and satisfying thought that he is doing a worthy work as a citizen and a conservationist, that he is benefitting innumerable people, adding to his own income, and really improving his farm property and making it more valuable—that is, worth more money per acre—than it ever was before.

A general movement of this character throughout the State by farmers and planters would actually add to the prestige of the entire commonwealth, besides in some degree adding to its wealth.

Abundance of game in Louisiana will also have the effect of bringing sportsmen here from afar, and every one such means more money coming into the State, spent in a variety of ways—transportation, gas, lube, licenses, supplies, food, shelter, all kinds of necessities, as well as souvenirs and luxuries.

The farmer himself will frequently find such sportsmen will not only patronize his game preserve (farm) but will also buy of him many of the products of his land beside the game they seek, because whoever they may be they will require food and the farm is surely the place to find it at its freshest and best.

Farmers will also, perhaps, occasionally earn further sums by acting as guides to sportsmen unfamiliar with the section. The prospect which is held out to the farmer as an assistant conservation agent in the manner above outlined is bright and may have the effect of raising a few mortgages here and there or in some other way making the farmer more than ever the most independent of American citizens.

To sportsmen generally, with the future of wild life at heart, as every true sportsmen must have, this idea of taking the farmer into the universal scheme of game life conservation will be hailed with acclaim, as its value cannot help but be apparent.

No matter from what angle or in what light you view the proposition, it seems to be most desirable. Now, all that is needed is the cooperation of the farmer, and the future of wild life in Louisiana and the glory the State has attained in this respect is permanently assured.

And, thus, Louisiana will become, to all practical purposes, one great big game preserve, under the daily supervision of its farmer conservationists, a veritable garden of delight to the sportsman, whose domain is being so widely and rapidly curtailed by the march of civilization and the increase of population.

Best of all, the wild creatures of forest and field will be given a sporting chance of survival, much of the credit for which must inevitably go to the cooperating farmer.

CONSERVATION TEXT BOOK

The Texas game commission has started a movement to have conservation taught in the public schools of that state. As a result, more than 2,500 copies of a book on conservation and wild life have been distributed.

Research on the Habits and Relationship of Wild Life - - -

By PAUL G. REDINGTON
Chief, United States Bureau of Biological Survey
(Excerpt from Annual Report)

PROGRESS has been made during the year in the study of problems of geographic distribution, classification, life history, and migratory movements of birds and mammals, of natural life zones, and of ecological relationships. The increasing demand on the part of wild-life administrators, research workers, and the general public for scientifically ascertained information on matters affecting the wild life of the country, in response to the steady growth of popular interest in wild life, accentuates the need for a vigorous prosecution of research work as a basis for a properly balanced program of wild-life administration.

The essential in wild-life research is reliable information regarding the habits, the diseases and parasites, the feeding preferences, the available food resources, the natural enemies, the reproductive cycle, and the relations to humankind. Comprehensive data and sound interpretation are required if intelligent, far-sighted action is to be taken in efforts to improve the welfare of wild life, to control inordinate increase of numbers, or to restock depleted areas, and to make necessary adjustments of wild-life interests to agriculture, forestry, livestock production, and other associated economic uses of land and water areas.

The research program of the Biological Survey is being articulated more closely with the work of other Federal and State agencies and educational and research institutions and organizations, and its extensive collections of specimens and important files of records and literature are made freely available to properly accredited investigators throughout the country.

REGIONAL INVESTIGATIONS

As a result of a co-operative investigation carried on by the Biological Survey and the Kentucky Geological Survey, a report on the wild life of the Mammoth Cave region, including the caves and their approaches, was prepared and is now in course of publication by the State Agency. A report on animal life of the Yellowstone National Park also was completed for outside publication and has now been issued.

RESEARCH ON BIRDS

Established lines of research in ornithology have been continued so that information may be readily available on the classification, distribution, migration, and life histories of birds, both for general use and for the program of research on the relationships of birds and other wild life to forestry production. About 75,000 records on these subjects have been carded during the year, and a considerable number of specimens added to the collection by field workers and voluntary contributors. Of more than 1,500 specimens identified for individual correspondents and for museums, some were referred to the Biological Survey because of difficulties in identification involving special research and comparison with types and series of specimens. The list of voluntary co-operators who observe and report on the general migratory movements of birds numbers more than 500, and 53 additional individuals have submitted reports on censuses of birds on selected areas.

A typical habitat of the famed Louisiana Black Bear which is still to be found in several parishes.

LOCAL STUDIES

Financial assistance contributed by public-spirited co-operators made it possible to take steps toward publication of comprehensive report on the birds of the State of Florida. This will make available the results of several years of field and laboratory investigations by members of the Biological Survey and many of its co-operators. It will contain a history of the ornithology of the state, an account of the known bird population, including descriptions, life histories, and ranges, and ample illustrations in color.

Two field workers of the Biological Survey contributed a comprehensive report on the birds of the Portland (Oregon) area, which was published during the year in the Pacific Coast Avifauna series of the Cooper Ornithological Club.

The birds of the Mississippi Valley region are being studied to obtain information supplementary to that already available regarding its bird population. Special attention is being given to birds now breeding on and in the vicinity of the Upper Mississippi River Wild Life and Fish Refuge as part of the program that has been inaugurated to make thorough biological studies of Federal game preserves and bird refuges.

BIOLOGICAL INVESTIGATIONS OF MIGRATORY BIRDS

Waterfowl censuses were continued this year as last, the reports averaging about 1,800 a month. To obtain voluntary co-operation and to investigate first-hand the waterfowl areas and conditions affecting the welfare of migratory game birds, field trips were made by representatives of the bureau to Alberta and Southern British Columbia, to the Pacific Coast States, to Arizona, New Mexico, and Texas, and to important waterfowl areas of the Potomac River and Chesapeake Bay. These inspections, together with reports of co-operators and investigations by other members of the staff, developed much valuable information. After conference with Canadian officials a change was made in the method of gathering information from co-operative observers. Hereafter, instead of the monthly system of reports, quarterly reports will cover conditions observed during the winter, the spring and fall migrations, and the summer breeding period to supplement field observations and reports by members of the employed personnel of the bureau.

BIRD-BANDING OPERATIONS

Banding operations have furnished increasingly valuable information regarding the migratory movements of waterfowl and other birds. The positive data obtained make it possible to determine and chart flight lanes between wintering and breeding grounds and their relation to resting and feeding areas. The resulting information will be exceedingly helpful in establishing refuges and in settling difficult questions of fact involved in the administration of the migratory bird treaty act.

The total number of ducks and geese banded up to the close of the fiscal year was 59,771, of which 27,724 were mallards, one of the most highly prized of game birds. Other important species banded in lesser numbers were black ducks, 8,387; pintails, 9,991; blue-winged teals, 2,362; lesser scaups, 2,079; green-winged teals, 2,045; and redheads, ringnecks, and baldpates, more than 1,000 each. Localities where 10 or more waterfowl have been banded have increased to 67. They are well distributed from Alaska and Southern Canada to Southern California and the Gulf of Mexico. Sportsmen have co-operated heartily in reporting on the banded ducks in their bags.

Co-operating banders who operate trapping stations of all types now number about 1,750. The number of bands purchased by the bureau and issued during the year totaled 272,000, and birds banded numbered 182,263. The return records received are estimated at 10,000, representing a 33 per cent. growth over the previous year. Leading research and educational institutions recognizing the scientific value of the work are participating increasingly in the banding operations. Bird-banding research is being more and more stressed in the organization of co-operative projects, and at least a dozen major trapping and banding stations have been established at universities and colleges from Maine to California.

To afford information on and to illustrate tested apparatus and technic, a Manual for Bird Banders, (Miscellaneous Publication No. 58) was issued during the year. This has proved a distinct stimulus to more effective work and to application of banding to special research problems and life-history work. Two other official publications on bird banding also were issued—an article in the 1930 Year-book, Migratory Status of Mourning Doves is Proved by Banding, and a circular (No. 118) on a method suggested for calculating the abundance of waterfowl on the basis of returns from banded birds. Better co-ordination of the efforts of co-operators should result from the combination of the Northeastern, Eastern, and Inland Bird Banding Associations in support of a new quarterly journal, Bird Banding, formerly issued as the Bulletin of the Northeastern Bird Banding Association. The Western Association continues to issue its own mimeographed quarterly, News from the Bird Banders.

(Continued on Page 24)

Industrial Progress for Louisiana

By L. I. POWELL
Louisiana Creative Industrial and Agricultural Association

ON DECEMBER 20 there was formed in the city of Shreveport an association of progressive Shreveport citizens to be known as the *Louisiana Creative Industrial and Agricultural Association.* The gentlemen behind this movement have given same long and careful investigation and are firmly convinced that Louisiana has not reached a state of arrested development. They are fast and firm in the belief that Louisiana is on the verge and at the threshold of a vast development of its natural undeveloped resources, agricultural and industrial.

They have assembled a great stock of scientific knowledge, chemical and otherwise, through the assistance of an eminent chemical and mechanical engineer; all of which is unknown to the public in general. For instance, it is a known fact that many industries would be located in this territory if interested parties looking for new development were advised as to the real opportunities that exist here. It is known that a great deposit of excellent clay for the manufacturing of high grade china is close at hand; as well as other deposits of other valuable minerals that have thus far in most cases been kept a secret. It is also known that there is enough Louisiana pine and other valuable woods destroyed each year to keep the wheels of several large industries busy manufacturing this waste into many useful and saleable articles; as well as many other undeveloped resources to which the average Louisianian has paid little if any attention.

Therefore, the Louisiana Creative Industrial and Agricultural Association purposes to advise the world by radio broadcast and other methods of advertising just what Louisiana has to offer in the way of resources, as well as agricultural and industrial opportunities. They have secured the services, by way of contract, of an internationally known chemical and mechanical engineer. They propose in the immediate future to build and maintain an adequate laboratory wherein research, chemical experiments and analyzation will be carried on, as well as the designing of machinery and other items to be manufactured in this territory and sold to the world. These plans for immediate action also embrace the building of two or more factories in which numerous useful household articles will be manufactured, mostly from waste pieces of wood now being burned up. Their engineer has designed, and has applied for patents and copyrights on nearly one hundred items to be made from wood, as well as several different kinds of machinery that will be eagerly sought as soon as they are placed on the market.

The Association feels that every citizen in Louisiana ought to be vitally interested in the success of its plans and purposes, as each citizen will be directly or indirectly benefitted. And it earnestly solicits the hearty co-operation and co-ordination of every chamber of commerce and other similar organizations throughout the State.

The Association is amply prepared to carry out these plans and purposes if it secures the hearty co-operation of the citizenship. Therefore, it has provided that every citizen of Louisiana, both men and women, may become a part of this great plan and program by becoming a member of the Association as a sustaining member at the modest sum of six ($6.00) dollars per year.

Each member will be given a membership card which will show that the holder is a contributing, willing helper in this great plan of progress for Louisiana.

This plan and proposition has been laid before some of the bright minds of our country and is considered safe and sound, feasible and practical, as well as novel, and if embraced by the citizens in general of Louisiana, it will pay handsome dividends to the State by way of increased population, increased agricultural production, increased industrial output and the exportation of large volumes of merchandise and other valuable necessities which are now, and have been, imported into our State.

This Association will establish a branch, or local unit, in every community, town, city and parish throughout the State. Through the corresponding secretary of such units the parent Association will receive a constant supply of valuable information concerning the resources and possibilities of the various sections of the State. Such information will be assembled in concrete form and through the various avenues of publicity of the Association will be advertised and broadcast to the world; more especially where such information leads to investigation by our engineers, wherein valuable discoveries are made of mineral deposits or other valuable undeveloped resources, agricultural, or otherwise; all of which will have a strong tendency to attract men and capital to such communities.

For instance it is now known by the officers of the Association and a few other people, that Winnfield and Winn Parish Louisiana have numerous deposits of various valuable minerals including gold, that can be *(Continued on page 29)*

FOREST BY-PRODUCTS

By V. H. SONDEREGGER
State Forester of Louisiana

THE largest revenue obtained from forest products is timber. There are many side products which produce revenue and are worthwhile. It is the purpose of the Louisiana Division of Forestry, from time to time, to issue a brief synopsis of the many by-products of the forest that will yield additional revenue and profits.

A Louisiana forest scene.

Louisiana is recognized as the State containing the largest acreage of Red Gum or Sweet Gum (*Liquidambar styraciflua* Linnaeus) timber, both second growth and virgin. This particular species has a valuable side crop known as gum or storax. This gum is obtained similarly as gum from pine trees.

Herewith we are reproducing a copy of the Forest Products Laboratory Technical note Number 231 on the subject of gum or storax produced from Red Gum trees:

"Red or star-leaved gum trees produce, when wounded, a grayish-brown, sticky semi-liquid substance containing oil of storax, cinnamic acid, etc. This balsam-like or resinous exudation is known locally as sweet gum, and commercially as storax or styrax. The geographical distribution of red gum (*Liquidambar styraciflua* Linnaeus) in the United States extends from Connecticut to southeastern Missouri, Arkansas, Oklahoma; south to Florida and Texas.

"Storax is valued for use in mildly medicinal and pharmaceutical preparations and adhesives, as well as for incense, for perfuming such products as soap and glove powder, and for flavoring tobacco.

"The storax from the Red Gum grown in the United States appears to be as satisfactory for all purposes as the more widely known and used storax from Asia Minor, which is a product of a different species, *Liquidambar orientalis* Miller.

"Storax, unlike the oleoresin of pines, is not present in significant amounts in the normal wood. Its formation is induced by cuts or wounds that expose the surface of the wood beneath the bark. The storax is developed in the new wood that grows after the wound has been made. It exudes from wound resin passages, coating the wood and often soaking into the bark.

"Preliminary experiments made by the Forest Products Laboratory indicate that comparatively small wounds yield more styrax than severe ones. For instance, girdling a tree yielded less storax than four horizontal cuts approximately one-half inch wide spaced 4 inches apart and exposing about 12 feet of cut surface.

"A miscroscopical study of specimens taken from the wood surrounding the horizontal cuts, however, indicated that the cuts nearer the ground were less productive than those higher on the tree. This difference in yield is not due to the height of the tree but to the fact that the supply of nutritive material from the leaves is hindered from reachthe lower cuts by those above them. It is therefore recommended that not more than two cuts be placed above each other and particularly that a vertical bar of bark be left between pairs of cuts to insure a good opportunity for the circulation of the sap. (See sketch).

"This type of scarring might be further modified by adding vertical cuts, although these are known to be less productive than horizontal cuts of the same length. The storax would tend to move down the more or less horizontal cuts into the vertical ones and some of it could be caught in a tin can or in a cup, such as is used in turpentining. It is possible that metal turpentine aprons or gutters, carefully tacked on to the bark below each cut would also reduce the waste which results from the storax soaking into the bark.

"Hacks or "hogals," such as those used in the turpentine industry, would probably serve best to make the cuts or wounds. Deep cuts are apparently both unnecessary and harmful. All that is needed appears to be a clean cut exposing the outermost layer or the last year's growth of the wood. This should probably be *(Continued on page 30)*

The Louisiana Bull Frog Industry

By C. L. LAMBERT
Manager, Sorrento Products Co., Sorrento, Louisiana

THE PRESS, journals, and magazines of the country publish a great deal about the different products and industries of Louisiana, but very little has been printed about the Louisiana bull frog as an industry.

The sale of frogs has grown from a very minor industry into one of large proportions, and is still increasing rapidly, as a comparison between the output of 1925 and that of 1930 will show.

Many people are familiar with the frog as a food, having been served this delicacy at the leading cafes and restaurants. They are doubtless aware of the food value of the frog, and its vitamin content, yet very few of these people are familiar with the life history, habitat, and economic importance of the Louisiana bullfrog.

Our legislators, realizing the value of the frog as a food, have enacted laws governing their protection and shipping. Among the most important laws are the "no gig" law, the law relative to the size of frogs taken, and that which prohibits the shooting of frogs. These laws, well enforced, enable the shipper to place on the market frogs free from fever or injury.

Like the muskrat, the frog seems to like the lowlands, where the lagoons and bayous abound, and where thousands of acres are constantly flooded with fresh water during each overflow.

It is in this territory, dense, grown up in tupelo, cypress, and other trees, that one can hear frogs croaking by the millions in their coarse voices. Here it is that the frogs mate, and where literally thousands of eggs are laid. After spawning, frogs disband, and scatter over their chosen areas.

The eggs are enclosed in a jelly-like mass, and are soon hatched by the heat of the sun. The small wriggling creatures that come from the eggs are tadpoles, and they swim about in the water in clusters and schools like so many fish.

During the next stage the hind legs appear, like twigs upon trees, and later the front legs are formed.

There are various reports upon the length of time it takes for a frog to mature, from the hatching of the egg, until it reaches adult size, and four years seems to be the period usually allowed for that development. Experience shows that at two or three years of age some of the frogs reach a very satisfactory edible size. While some frogs have been seen weighing 1 1-4 to 1 1-2 pounds each, they are not plentiful in the average lowlands, while in the higher parts of Louisiana, in waters where the

(Continued on page 27)

Fishing camp at Junction of Red and Black rivers.

Establishment of Forests by the States

By L. S. HOLMES
State Forester, State of North Carolina

IT SEEMS to me that if it is a good time for cities to acquire lands and adopt a forest tree planting program as has been proposed, it is also a good time for counties and states to acquire lands and develop them. They will never be cheaper.

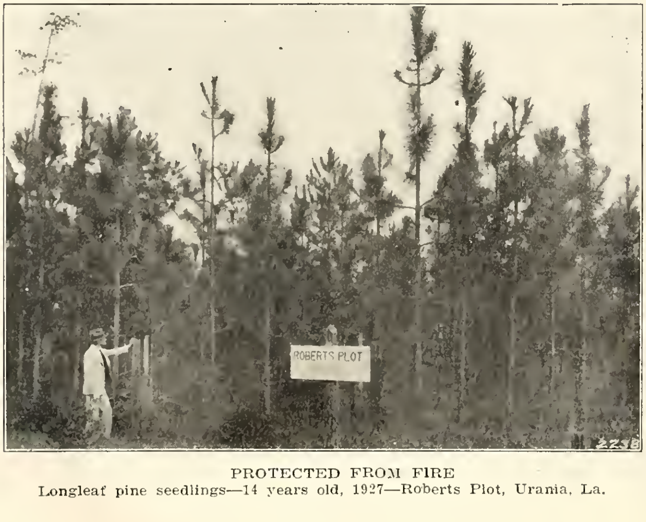
A program of acquisition and planting by the State and counties would quickly have a beneficial influence, not only in furnishing local people with employment and relieving many land owners of their poor and unremunerative land, but by releasing money for necessary trade in communities where there is at present little or no business going on.

The North Carolina Forestry Association has suggested a bill, which it is planning to urge for passage at the next session of the Legislature, for the acquisition by the State of lands suitable for timber growth and their management as State forests. It is suggesting the authorization of a bond issue totaling $1,000,000 for the purchase of such lands.

Obviously it would be of great help to the farmers, the unemployed, the storekeepers, and the public to have $1,000,000 expended in 25 or 50 of our counties over a period of three to five years, putting that much into general circulation. To this should be added an annual appropriation of $50,000 to $100,000 for carrying on planting operations on these lands over a similar period.

There are many thousands of acres of land which can now be purchased at from $1 to $3 per acre, which, when planted to a growing and promising forest, will be worth every cent of what they have cost. No doubt the bonds can be retired at the end of a 40- or 50-year period with the timber which can be sold from such lands.

If the present depression is only a temporary condition which two or three months will bridge over and place us where no further assistance need be given to the unemployed, then such a program would have to depend upon its own intrinsic economic and educational value for its justification, and it can easily do that; but if a more extended program seems advisable, such a plan deserves very careful and immediate consideration.



PROTECTED FROM FIRE
Longleaf pine seedlings—14 years old, 1927—Roberts Plot, Urania, La.

BIG AREA IN SOUTH DESTINED TO GAIN BY RICHLAND GAS

A large area in the South is destined to be furnished with natural gas from the Monroe-Richland field in Louisiana, in the opinion of E. B. Swanson, the chief economist of the petroleum division of the bureau of mines.

By making available throughout that region a fuel with an unusually high efficiency, industrial development is certain to be stimulated greatly, it is believed.

Such rapid progress has been made in the construction of pipe lines and other equipment of distribution that there no longer is doubt as to the transportation of the gas at a cost that will permit of reasonable rates at any point within 1000 miles of the field.

At present Mr. Swanson says the major part of the natural gas produced in the Monroe field still is being used in the manufacture of carbon black, but the fact that the proportion decreased from 70 per cent to 60 per cent in 1929 indicates the rapidity with which higher uses are being found for this extraordinary fuel. He expects to see carbon black production decrease at an accelerated rate as the building of pipe lines serves to increase the field value of gas.

Public Interest in Conservation of Fish Growing

Recognition of Future Needs Is Helpful in Federal Program, Bureau of Fisheries Says in Review

PUBLIC INTEREST in fishing and in the conservation of fish for commercial and recreational purposes is one of the most encouraging features in the present situation of the Bureau of Fisheries, says Commissioner of Fisheries, Henry O'Malley, in the report of the Bureau made public November 17 by the Department of Commerce.

The commercial fisheries of the United States, according to the report, are in a stronger economic position today than those of any of the other large fish producing countries.

The full text of the Department's announcement follows:

The commercial fisheries of the United States are in a stronger economic position today than those of any of the other large fish-producing countries. This favorable status is due in no small degree to the scientific research work conducted and the practical aid rendered by Government experts.

GREATER INTEREST SHOWN

The most encouraging feature of the present fisheries situation, Commissioner O'Malley states, is the "aroused public conscience to the need for proper husbandry of our fisheries resources." Commercial fishing interests, State and private enterprises engaged in large-scale fish propagation and organization, and individuals interested in having good fishing and enjoying the use of lakes and streams for recreational pursuits, are all in accord as to importance of conserving our fishery resources. There is much evidence of an intensified interest in the future welfare of our fisheries, Commissioner O'Malley's report declares. Sportsmen's organizations are concentrating their efforts to provide better angling, to overcome the evils of pollution, and to obtain the passage of State and Federal laws which will more adequately conserve this great natural resource. Commercial fishermen are taking a greater harvest from the waters than ever before, are introducing greatly improved methods, and are revealing a greater interest in the proper conservation of this resource as a sound economic policy.

The Bureau of Fisheries finds a reflection of this intensified interest in the increased demands for fish for stocking waters, for additional fish-cultural facilities, and aid to a greater number of private organizations interested in the co-operative rearing of fish for stocking local streams.

SCIENTIFIC INQUIRIES

This is also true of the demands for scientific investigations to disclose the need of stronger conservation measures; for studies of every important fishery to reveal its conditions and trend; for an expansion of its investigative program with respect to such agricultural pursuits as oyster farming, fish farming, and the control and prevention of diseases. Likewise more intelligent interest is being shown in the solution of the problems of the commercial fisheries, improvements in methods of manufacturing and merchandising, in the use of by-products, and in the conduct of fundamental investigations with respect to processes, nutrition, and uses.

Fundamental studies on the factors that affect the abundance of fish in the great commercial fisheries of the Atlantic seaboard have been undertaken

Catahoula Lake, Lasalle Parish during a drought. A small dam would raise the water level and perpetuate the fish during such adverse periods.

during the past two years. Studies of the chemical and physical condition of the water and its contained floating life have been made at various seasons of the past year, in order to judge the success of spawning of various important species, and the influence that controls their migration.

A comprehensive report on the migrations and biology of the cod of southern New England has recently been issued, and rapid progress has been made on studies of the stock of mackerel. Investigation of the commercial fisheries of the Pacific coast and Alaska have been restricted to the salmon runs of Alaska, to the completion of salmon-tagging experiments on the Columbia River, and continuation of the Alaska herring studies. Investigations of commercial fisheries of Lake Erie and Lake Huron were continued.

STUDIES OF OYSTERS

Oyster investigations during the past year consisted of the experimental study of oyster culture in New England, Georgia, Texas, and Washington, in a study of the physiology of adult and larval oysters, in a study of the effect of pulp-mill waste on oysters of the Puget Sound, and in an investigation of the biology of the natural enemies of the oyster such as the oyster drill and starfish. For the first time in 40 years, according to the report, the killings of fur seals on the Pribilofs in 1929 exceeded 40,000 animals.

The output of the Bureau's fish-cultural service in the stocking of streams exceeded 7,570,000,000 fish and eggs as compared with 7,060,000,000 in 1929.

The commercial fisheries of the United States and Alaska, the report shows, furnish employment to more than 125,000 commercial fishermen and 4,000 persons engaged in the transportation of the catch. The annual harvest is in excess of 3,000,000,000 pounds for which the fishermen receive $116,000,000.

Edible fishery products constitute over 2,600,000,000 pounds for sale in the fresh state or for manufacture. In the fresh fish trade of 1929, 84,397,000 pounds were prepared in packaged form valued at $14,813,000 and 121,543,000 pounds, of fishery products were frozen. In the canning trade the most important process of manufacture the pack amounted to 689,447,000 pounds, valued at $101,065,000. The output of cured and smoked fishery products is estimated at 150,000,000 pounds valued at $12,000,000 and the output of fishery by-products was valued at $23,768,000. This included fish oil, meal, lime, and grit from oyster shells, buttons from fresh-water muscle shells, and many other products. Imports of fishery products were valued at $66,566,000 and exports at $23,830,000. In 1929 as compared with 1928 there were substantial increases in the output of packaged and frozen fish, canned fishery products, by-products, imports, and exports.

Commercial fishing operations for the Louisiana Catfish provide employment for thousands and the annual catch of this fish is in excess of 12,000,000 pounds.

Secretary Wilbur Says Conservation Is Chief Task of Interior Department

Hoover Dam Is Greatest Engineering Project in View, He Declares in Annual Report---Makes Eight Recommendations Regarding Reclamation Service.

CONTRIBUTIONS by communities affected by construction costs of flood control projects, a revision of the laws for reclaiming privately owned land and the application of power profits to repay construction costs and, after that, as a credit to the reclamation fund, were among eight recommendations made by Ray Lyman Wilbur, Secretary of the Interior, in his annual report of the Department of the Interior made public recently in Washington.

"Oil-shale lands," it is stated in the report, "have received vigorous protection." These lands have no immediate value for oil, but during the past year, every mining engineer in the General Land office, save three, was called from other work to assist in identifying, examining, and physically posting more than 6,400 oil-shale claims, with notice of a default to the United States for failure of the claimant to perform assessment work, according to the report.

An authorized summary of the report follows in full:

Conservation is this Department's chief task and the work of its bureaus during the past year has had that purpose as its foundation.

Longleaf pines—a lovely setting for a lovely child.

This report is divided into three parts: (1) Foreword; (2) Current Operations; and (3) The Past Year's Work in Brief. The foreword is given to the subject of "Continental Conservation."

'WISE USE' OF NATURAL RESOURCES

Gradually we have been acquiring new conceptions of continental conservation. Conservation means wise use. Wise use means that a natural asset shall be used for the proper purpose and at the right time.

Hidden beneath the surface of our land were great stores of coal, oil, natural gas, and minerals of many varieties stored there through the ages. Fortunately, immense stores were so distant from the market, or so hard to master, that they were left intact, although they were subject to location as mineral claims. Until the Mineral Leasing Act was passed, discovery of these resources led to their transfer to private hands. These mineral resources, while extensive, can never be replaced.

In many parts of the country control of plant life depends on controlled water. The plant life of the past has given us our irreplaceable resources in coal, oil, and gas. These plants working away in the presence of sunshine and water to make food for themselves and for us and our domestic herds are our most valuable material possession. These plants depend entirely upon the rains, the soil, and the sun. Conservation, control, and management of plant life will determine the future of the people of America upon this great continent of ours.

Historically the Department of the Interior has played a large part in this country's pioneering. As new territory was absorbed, the lands belonging to the National Government were distributed through the General Land Office of the Department of States and to private citizens, through cession, sale, through special acts of Congress, including the homestead law, the Timber and Stone Act, the Stock-raising Homestead Act, and in a number of other ways.

Alongside of the problem of handling the public lands was the necessity of caring for the interests of the Indians, who had once roamed throughout the whole of our territory—thus came about the Office of Indian affairs. In the western march, certain unique and beautiful areas belonged to the whole people, so that they were set apart as national parks. The lure of gold brought men to seek for wealth in every nook and cranny of the West. The Geological Survey helped not only to discover these mineral resources, but also all of the other forms of wealth hidden in our continent or to be developed through the control of stream flow. The discovery of coal beds and petroleum have had much to do with the development of our vast wealth.

The future of the minerals of the public domain is being considered by the Public Land Commission along with the question of the disposition of its surface. There are two divergent schools of opinion as to the proper use of these minerals. One is the old theory of exploitation; the other is the policy of conservation, meaning by that term wise use rather than hoarding. The latter has been the policy followed by this administration.

CHECK OF WASTE IN MINING METHODS

The policy of conserving oil has naturally encountered opposition from the exponents of the other school of thought, more interested in immediate revenues than in the ultimate utility of oil and gas. Because State governments are to a major extent beneficiaries of these royalties there has been necessary a three-cornered balancing of interests between the public of the United States, the oil-bearing western States, and their citizens. The surface of the public domain cries for immediate care, and the States may be more competent to give it than the Federal Government; the minerals, particularly oil and gas, on the other hand, have a greater future utility than a present one.

The department last year asked and received from Congress two major pieces of legislation which will be important aids to this year's conservation efforts. Authority was granted for Government participation in unit operation and development of single oil pools involving public lands, permitting development of these common pools by the minimum number of wells, with a minimum waste of gas and oil and eliminating "Offsetting" with its accompanying overproduction, and authorizing extensions of leases for the life of the agreement. The authority conferred by this legislation will expire Jan. 31, 1931.

Negotiations are now under way for a unit agreement, in Kettleman Hills, Calif., whose production of high-grade oil, if allowed to flow under the ordinary old-fashioned wasteful conditions from a score of ready and waiting wells, would flood the oil market with gasoline exceeding in quantity the entire California production. The gas wasted from that field each day exceeds 450,000,000 cubic feet although only six out of about 30 wells are being allowed to produce. Each year the waste of energy from Kettleman Hills is over twice the total expected annual electrical output of Hoover Dam. Californians who for years have urged the development of the Colorado River as a great new source of energy probably do not realize that failure to enforce strict conservation measures is costing them annually twice as much irreplaceable energy as Hoover Dam will be able to make good.

When the President's oil conservation policy was put into effect on Mar. 12, 1929, there were approximately 17,500 outstanding prospecting permits. On July 1, 1930, the number outstanding had been reduced to 5,094.

WELLS CLOSED FOR LACK OF MARKET

But there has been no real injury to the oil industry thereby in any of the seven oil-producing public-land States. Each year during the last three years more wells have been shut in because of lack of market than have been brought into production. On July 1, 1930, there were shut in, in these seven States, 6,190 wells, including 599 on the public domain; whereas new wells brought into production during all of 1929 and the first six months of 1930 numbered only 1,898, including 282 on public land.

Oil-shale lands, though having no immediate value for oil, have received vigorous protection. During the past year, commencing last Spring, every mining engineer in the General Land Office, save three was called off other work and under my personal orders assisted in

A natural leafy archway.

identifying, examining, and physically posting more than 6,400 oil-shale claims with notice of default to the United States for failure of the claimant to perform assessment work. This followed the Supreme Court decision of Wilbur v. Krushnic, which, although it reversed the Department and sustained the claimants on the issue of assessment work, and so swept aside the bulk of our defensive procedure, left the possibility (though no certainty) that if the remaining claims were posted before resumption of work on the claim, a different result would follow.

This posting work will continue during the current year, and the tremendous task of adjudicating these claims will get under way. A second test case in the courts may be expected. No leases have been issued under this administration. But oil-shale claims valid in 1920 can be taken to patent under the mining law, without any discretionary power in this Department to decline to issue the patent. Accordingly about 42,000 acres have been patented.

The Geological Survey as a fact-finding agency faces a growing demand for facts regarding the country's natural resources, and it must grow with the demand.

The sums expended for the protection of the public domain are entirely out of line with the importance of the work. This protective work, the responsibility of the field service of the General Land Office, has furthermore been seriously crippled during the past year by withdrawal of all except three of the mining engineers for work on oil-shale lands to facilitate the repossessing of defaulted claims, under the Secretary's instructions given last Spring.

RECOMMENDATIONS FOR RECLAMATION SERVICE

Reclamation is the backbone of the Far West. The fundamental question as to whether or not it shall continue should be answered in the affirmative so long as development is carried out along sound economic lines. Eight recommendations are made as follows:

1. Continuation of the present policy of turning over operation of works to the water users as soon as they are able to take control.

2. Contribution to construction costs by communities benefited by flood control.

3. No new project should be undertaken unless there is a definite prospect of complete repayment of Federal expenditures.

4. A revision of the laws for reclaiming privately-owned land.

5. Application of power profits to repay construction costs and, after that, as a credit to the Reclamation Fund.

6. Restriction of construction expenditures each year to the Reclamation Fund's income for that year.

7. Necessity for legislation perfecting control of surplus lands within a project.

8. Study of Government refinancing methods for a few selected private projects.

The greatest engineering job ahead of this Department is the construction of Hoover Dam in the Colorado River. The project was dedicated Sept. 17. Construction on the railroad began that day. Work is now under way on the power line which will furnish power for construction of the dam. Contracts for the dam itself will be advertised within a few months. This structure will raise the water level 582 feet, generate 1,200,000 horsepower of electricity, cost, with its power plant, over $100,000,000 and will pay for itself by its own falling water. The result will be flood protection to Arizona and California lands, reclamation of deserts, improvement of navigation, and the bringing of needed water for domestic supply to the coastal plain of southern California.

It will be a monument to the engineering genius of many men, headed by Dr. Elwood Mead, Raymond F. Walter, John L. Savage, Walker R. Young, and their predecessors, Arthur P. Davis and Frank E. Weymouth.

Common sense administration of the affairs of the Indian was not possible under old conditions, since much that should be done by administration has been done by legislation. There is a real opportunity at the present time for some constructive legislation by Congress which would open the way to a more efficient operation of the problem of the Indian. Concrete suggestions have been laid before Congress by the Indian Service.

The old situation is unsound and will remain so until the Indian takes his place side by side with the rest of the citizenship, with the normal self-respect that goes with self-support. The Indian boy and girl should be given an education up to the average of the white boy and girl with whom they must compete if they are to become self-supporting. In the past for the most part the schools have not gone beyond the lower grammar grades.

The solution of the Indian problem will take a generation; and it can be reached only if two landmarks are kept plainly in view: (1) The Government must be divorced more and more from supervision over

(Continued on page 28)

THE AMERICAN GAME PROTECTIVE ASSOCIATION NEWS SERVICE

Senator Harry Hawes to Aid Wild Life in Broader Field

Senator Harry B. Hawes, Democrat, of Missouri, will continue to work for conservation and wild life restoration "in a broader field," according to announcement from his office in Washington, following his withdrawal from the "More Game Birds in America, a Foundation." Senator Hawes said that he was determined to devote his future years to conservation and restoration, but could not at this time announce his plans. Sportsmen and other conservationists are expressing satisfaction over the Senator's avowal to continue to work for their cause, according to expressions reaching the American Game Protective Association.

Senator Hawes has long fathered wild life conservation bills in the United States Senate, and has received international recognition as a leading conservationist of this country. He is also author of several books on wild life in which conservation is stressed.

"My interest in conservation and replacement of outdoor life cannot be influenced by personal considerations," Senator Hawes said in an open letter to Joseph P. Knapp, sponsor of the foundation, in withdrawing from the presidency recently. "It is a broad, national problem, and its future is greater than any one man or any one organization. My determination to devote my future years to it has not changed, but I believe my efforts will be more effective in a broader field," Senator Hawes continued. He subsequently said that he is not ready to announce his larger plans but reiterated that he would continue in wild life conservation work, and that he will retire from the Senate when his term expires in 1933.

"Your subsequent determination to maintain the headquarters and executive offices in New York instead of Washington, contrary to our agreement and over my vigorous objection, and your selection of all officers from New York City or its immediate vicinity, in my opinion, robs the foundation of its proposed national character and limits its activity to a restricted objective which will not meet with popular support," Senator Hawes wrote in part, in giving his reasons for withdrawal.

Nature Slays More Game Than Man, Reports Show

New York.—Recent investigations to discover why game birds are decreasing in spite of protective laws and restorative measures reveal a terrific gauntlet of death in modern nature beside which the sportsman's gun is but a puny peril, and emphasize the urgency of an immediate new trend in conservation work, according to an announcement from officials of the American Game Protective Association.

Gardiner Bump, heading an incomplete survey of the ruffed grouse situation in New York State, has reported that out of 14 nests observed eight were broken up before the eggs hatched. Of the 50 chicks leaving the nests only 24 survived the inroads of natural enemies two months later, and these faced a winter shortage of food and probable helplessness against predators.

A partial study of breeding grounds in Montana, frequented by wild ducks and some pheasants and Hungarian partridges, disclosed almost total mortality among the eggs and young because of predatory animals.

A summary of the investigation by the quail fellowship of the University of Wisconsin into the dangers faced by wintering quail revealed an appalling loss among all coveys observed except the few that were able to find corn for sustenance.

Association officials, interpreting these and other reports, declared that apparently in no two sections are the same predators found to be the worst evil. Hawks and owls destructive in one field are discovered to be benefactors in another because of their preying upon worse predators.

"This presents a situation which sportsmen-conservationists can not fight alone," the officials declared, "since each territory presents a different problem, it is obvious that every farmer and landowner must be given some definite incentive to join actively in restoration work, if game is to be preserved outside of refuges, and if the American system of free-shooting is to prevail."

Wild Life Crop as Farm Aid Is the Aim of Game Conference

New York.—Paving the way for establishment of a national game policy, some of the outstanding subjects for discussion at the Seventeenth Annual American Game Conference convening at Hotel Pennsylvania here on December 1 and 2 were expected to mark definitely a new trend in game conservation and restoration work in America.

Announced as the most important meeting ever held in this field because of its purpose, the Conference will attempt to broaden the scope of game as a natural resource by giving the farmer and landowner a practical incentive to protect and restore game as a "secondary farm crop."

This plan as proposed in the findings of a game policy committee will be suggested as a drastic step toward saving wild life from gradual extermination through various causes everywhere except in supervised refuges, and as an urgent means for preserving the free-hunting system of America in its widest sense.

Attending the Conference were game commissioners, scientists, sportsmen, and conservation experts from all over this country, several provinces of Canada and possibly from Mexico. They met under the auspices of the American Game Protective Association.

In a paper of keynote interest Seth E. Gordon asked, "How do sportsmen prefer to pay for their shooting?" This included discussion of hunter-farmer relationships in Michigan, where as an experiment hunters and organized farmers cooperate in their efforts at game restoration. Mr. Gordon is conservation director of the Izaak Walton League.

"Does game increase when the landowner has a stake in the game crop?" was answered by J. G. Burr, director of education and research of the Game, Fish, and Oyster Commission of Texas, where remuneration for the landowner has been tried.

Probable adoption of a national policy and discussion of conservation problems from every angle were scheduled on the two-day program.

Human Lives Saved by Law to Prevent Killing Fawns, Does

New York.—The buck law to save deer is saving the lives of human beings as well, according to reports reaching officials of the American Game Protective Association.

Since the law against shooting of does and fawns was inaugurated in Itasca County, Minn., not a single person has been shot for a deer, records show. A similar effect of the law has been observed in New York, Connecticut, New Jersey, Michigan, Wisconsin, Montana, Washington, California, and Texas, where the protection of does has also been adopted, the officials stated.

Formerly this mistake was a frequent occurrence in every hunting season, they said. In fact, the annals of hunting abound in stories of men being mistaken for wild turkeys, partridges, ducks, and nearly every other prize of sport except black bass and speckled trout—the latter exceptions perhaps explainable by the fact that a law has long existed against the shooting of fish.

"Such mistakes are usually due to blind shots fired by excitable hunters at any movement in the brush," the Association officials said. "Thus we still hear stories of men being shot because they were good at imitating the call of a turkey or wore a cap of a certain color."

"But the law which requires a hunter to hold his fire until he can distinguish positively whether a deer is a doe or a buck naturally prevents him from shooting blindly at a man by mistake," they pointed out. "In some states the shooting of young bucks is also forbidden, and there the hunter must first count the points on his quarry's antlers."

In every section where does have been protected an increase in the herd has resulted, the officials said. In Pennsylvania the increase was so enormous the ban has been lifted.

Louisiana's Material for Paper Making Held Unlimited

Reprinted from New Orleans Times-Picayune

Big Crowd Hears Talk Before Chemical Engineers Convention

DEPLORING the South's inertia in permitting one of the greatest industries of the age, the manufacture of paper and that of white paper particularly, to lie dormant where unlimited possibilities abound, Dr. Charles H. Herty of New York City addressed a crowd assembled in the Tip Top Inn, The Roosevelt, in New Orleans, Monday night, December 8. Delegates to the 23rd annual convention of the American Institute of Chemical Engineers and the general public comprised the audience.

After terming cellulose the greatest asset the South possesses today in the way of a chemical, Dr. Herty explained the success of a recent laboratory experiment which conclusively proves, he said, that the slash pine—overflowing the Southern states—has the properties necessary to the production of white paper, a hitherto disputed question because of the contention that this wood was too rich in resin for utilization in white paper manufacture under the sulphide process.

EXHIBITS MATERIALS

Exhibiting materials for newsprint and finer white paper, taken from slash pine specimens after the laboratory experiment, the speaker pointed out that the analysis indicated there is no more resin in the pine which contains the greatest amount of resin of all pines than in the Canadian spruce, from which most white paper is developed.

PULP WOOD CUTTING (Courtesy U. S. Forestry)

The Brown Paper Mill Company of Monroe cut the above area leaving the smaller trees to grow for a second cut later on. The area has a chance to reseed satisfactorily.

"This shows that the South today does not need new products nor new inventions," Dr. Herty said. "It is blessed with the greatest of natural resources. What it needs is application of sound principles of chemical engineering to the development of these resources."

Louisiana is particularly blessed, Dr. Herty said, in its many resources. He spoke of the salt mines, sulphur, natural gas and oil fields, referring to the latter two as the ideal fuels for industrial purposes.

CITES CELOTEX

"When I see what has been done in the celotex industry," he continued, "I am happy. For there is progress. That is chemical control. There is utilization of a by-product. I say to the people of Louisiana, 'Look to your products. See that they are advertised so that the rest of the world will know and share your benefits.' "

Dr. Herty said that the farmer has too long been looked upon as an agriculturist from the standpoint of raising cotton and vegetables. "The one important thing for him to do is to raise good pine trees on his old, abandoned fields."

Preceding Dr. Herty on the night program was Major W. H. Holcombe, chief of the United States engineers in charge of flood control in this division. Major Holcombe, talking on flood control, explained the project adopted by Congress in May, 1928, which involves the expenditure of $325,000,000 by the federal government toward protecting the rich regions hitherto affected by the floodwaters of the Mississippi valley.

MAJOR HOLCOMBE SPEAKS

"From press accounts," Major Holcombe said, "one might get the impression that this plan is faulty and needs revision. But I have yet to hear it criticized from an engineering viewpoint. The criticism resolves itself down to economic aspects. The plan is adequate and will succeed in protecting areas where it is economically wise to make improvements. The several states of the valley, however, must lend their aid."

Dr. C. S. Williamson, Jr., head of the department of chemistry at Tulane University and chairman of the New Orleans committee of the American Institute of Chemical Engineers, presided.

The growing importance of the New Orleans section in development of improved chemical processes and greater utilization of the natural gas, sugar cane products, lumber and salt, was revealed in papers presented at the first session of the convention.

How these products are leading to the industrialization of Louisiana and the New Orleans area through development in chemical synthesis, nitrogen fixation, new processes in oil refining and other branches of chemistry, were brought out in papers read at the morning session.

More than 150 leading chemical engineers were present Monday when the session formally opened, with Professor Alfred H. White of the University of Michigan, president of the organization, in the chair.

Officers Elected

Following the presentation of several papers, the annual election of officers was held, with Dr. J. C. Olsen of the Brooklyn Polytechnic Institute being elected president. Other officers elected with him were: John V. N. Dorr, New York City, vice-president; F. J. LeMaistre, Philadelphia, secretary; M. H. Ittner, Jersey City, treasurer; David Wesson, Montclair, auditor, and the following directors: Harry A. Curtis, consulting engineer of the Yale engineering department; R. E. Wilson, Chicago; W. N. Jones, Akron, and James L. Bennett, Wilmington.

Methods by which long-distance transportation of natural gas through pipe lines will make available to the chemist and industry an abundant supply of cheaper and richer fuel were pointed out at the morning session in a paper presented by Edgar G. Hill and George I. Rhodes.

They pointed out that the construction of the pipe line from the Monroe gas field 280 miles to New Orleans in 1927 had marked a new era in long distance transportation of natural gas. Construction of long lines has become frequent and now a pipe line 1000 miles long from the Amarillo field to Chicago is being laid. This is a 24-inch pipe and will provide Chicago with 200,000,000 cubic feet of natural gas a day.

Oil Refining Explained

The use of hydrogen in oil refining was explained in a paper presented by W. M. Boyer, director of research for the Standard Oil Company of Louisiana. That crude oil, refinery residues and even coal can be converted in gasoline with the addition of hydrogen was pointed out by Mr. Boyer.

He said that through hydrogenation, processes had been evolved to manufacture premium quality lubricants from low-grade lubricating distillates.

Carleton Ellis of New York explained a new process of German origin for making a substance resembling cotton from iron. A process also of making fertilizer, declared to be heavier in nitrogen content than Chilean nitrate, was presented by Mr. Ellis. This is accomplished with ammonia and carbon dioxide gases.

Rubbing fish lines with a flannel cloth dipped in a mixture of two parts of boiled oil and one part of gold size is reported as a successful method of waterproofing. The solution may be prepared by shaking the two ingredients together in a bottle. The line should be exposed to the air and dried thoroughly before using.—American Game Protective Association news service.

Louisiana leads in hardwood timber production.

Louisiana Conservation Review

A monthly publication devoted to the dissemination of news and in the interest of the conservation of game, fish, and other wild life, forests, and minerals.

Distributed free by the Department of Conservation to anyone interested in the protection and utilization of the State's Natural resources.

ROB'T S. MAESTRI, *Commissioner*
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VOL. I. FEBRUARY, 1931 NO. 5

EDITORIAL

Arbor Day

Arbor Day will be celebrated in Louisiana on February 22nd.

The Department of Conservation, through its Division of Forestry, the State Department of Education, the Louisiana Federated Women's Clubs, and the American Tree Asociation of Washington, D. C., have combined their efforts in co-operation with the George Washington Bicentennial Tree Planting. Programs will be carried on throughout the State, in the public schools, and through the civic organizations.

The Division of Forestry has compiled a tree program containing programs of various subject matters for the Arbor Day ceremonies. In addition, the American Tree Association of Washington has published a booklet and several pamphlets covering the purpose of the George Washington Bicentennial Tree Planting.

Trees will be planted this year, and will be dedicated in 1932 to celebrate the two hundredth anniversary of George Washington. It is believed that the tree planting programs of the Louisiana efforts will result in thousands of trees being planted and dedicated to a worthy cause.

The greatest memorial and tribute that can be paid to George Washington is the planting of trees by individuals, schools, and civic organizations. In addition, the nation is making preparations to celebrate the Washington Bicentennial, and Louisiana will do its share to make this program a success.

The Division of Forestry, upon application, will be glad to furnish the schools and other civic organizations the material necessary for building up programs for the Arbor Day planting, and in addition, a limited supply of trees are on hand that will be distributed, gratis, to schools and other organizations who are taking a part in the George Washington Bicentennial Tree Planting program for Arbor Day on February 22, 1931.

Forestry Congress to Outline Timber Extension Plans

To discuss means of enlarging the timber resources of the Central States and of developing hundreds of thousands of acres now unproductive, the Forestry Congress of the Central States will meet December 3-5 at Indianapolis, the Department of Agriculture announced November 29. Representatives of the Department will attend the congress, according to the announcement, which follows in full text:

Representatives of the Department of Agriculture will participate in the Forestry Congress of the Central States at Indianapolis, December 3-5. Interest in the congress is widespread. Illinois, Indiana, Ohio, Iowa, Missouri, Kentucky and Tennessee will participate officially, and Arkansas, Michigan, West Virginia and Wisconsin have been invited to send delegates.

Governor Harry G. Leslie of Indiana, will open the meeting.

The Congress will discuss the common forestry problems of these States and will formulate progressive and consistent policies of forest reconstruction, says Richard Lieber, Director of the Indiana Conservation Department. The program will look to the enlargement of the timber resources of the region and to the development of hundreds of thousands of acres now unproductive.

The Forest Service will be represented at the Congress by E. F. McCarthy, Director of the Central States Forest Experiment Station, who will speak on forest research problems of the region; R. C. Hall, Acting Director of the Forest Taxation Inquiry, on taxation of forest properties and farm woodlands; L. F. Kellogg, and Ralph K. Day, of the Central States Experiment Station, on forest planting, and protection of woodlands from grazing, respectively; and R. D. Garver, of the Forest Products Laboratory, on prospective markets for hardwoods. W. B. Grange, of the Biological Survey will speak on forests for commercial game production, and W. E. Tharp, of the Bureau of Chemistry and Soils, on the effects of forests in checking soil erosion.

Soil Analysts Deal With Merest Traces

Chemists of the United States Department of Agriculture have found that some of the problems of soil analysis challenge the accuracy of the most painstaking of scientific workers. Many constituents of agricultural soils occur in such minute quantities, say the soil chemists, that in ordinary analytical work they would be disposed of by saying there was a "trace." The soil chemists learn to deal in traces.

W. O. Robinson illustrates this fact in a discussion of the methods now followed in the Bureau of Chemistry and Soils. "The phosphoric acid determination," he says, "is a stumbling block to the average analyst. A concrete idea of the importance of accuracy in soil analysis may be had by calculating the increase of phosphoric acid and lime in the soil, as the result of adding a liberal dressing of these fertilizers. An application of 200 pounds of phosphoric acid to the acre will raise the percentage of phosphoric acid in the surface soil by only about one one-hundredth of 1 per cent."

The upper 6 inches of an acre of soil weighs approximately 1,750,000 pounds, the chemists have found. In one of the notable achievements of soil science it was found that certain previously unproductive soils in Florida would grow excellent crops of tomatoes if fertilized with only a few pounds of manganese compounds. In certain tobacco soils the addition of a few pounds of magnesium per acre has made differences in production that have fairly astounded the growers. In dealing with such infinitesimal traces of chemical substances, the chemists are forced to use the purest reagents available, and to exercise the most scrupulous attention to their methods. In some of the processes it is necessary to use only platinum vessels because glassware and other utensils would be likely to introduce traces of the substances from which they are made, and so destroy the accuracy of the analysis.

MARDI GRAS IN NEW ORLEANS

The Carnival in New Orleans
Is lots and lots of fun.
The revelers are all "en masque"
To start a laugh is not a task
'Tis very quickly done.
Wild Indians whoop at every turn
Boy Blue salutes Bo Peep,
And Harlequin and Columbine
Dance gaily up and down the line
Where flames from torches leap.

In New Orleans at Mardi Gras
The streets are all aglow.
Confetti bands, red, green, and white,
Float in and out—a pretty sight—
Where lads and lassies go.
The gorgeous floats pass quickly by.
And on their dizzy height
Stand alien folk from mystic lands
Who throw bright gifts right in your hands
As you wait in the night.

In New Orleans at Mardi Gras
From pave to tall arcades
Bright oriflames of purple hue,
And green and brilliant orange, too,
Float over the parades.
And Oh! the sound of marching!
And Oh! the drums' loud beat!
While every man with gallant air,
Smiles fondly on his "ladye faire,"
So winsome and "petite."

Now, some dull day when Fortune
Has turned her back on you,
And Winter's cold and cruel breath
Has nearly frozen you to death,
THIS is the thing to do.
Come to our happy Southland
Where sun's rays quickly thaw,
And stay with us for several days
In New Orleans where mankind plays
On Merry Mardi Gras.

—Estelle Verjie Cottman.

Original Idea Leads to 30 Years of Forestry

A lumberman, who had been in the habit of slashing his white pine and moving on to the next piece, conceived the idea, about 30 years ago, of growing his trees as a permanent crop. Today he ranks as one of the authorities on growing this valuable timber, according to J. C. Kircher, regional forester of the United States Forest Service. He is O. M. Pratt, of Holderness, N. H., who now has 1,800 acres of timber which he is managing for continuous production.

Thirty years ago technical forestry was in its infancy in America. But one day Mr. Pratt looked on the cut-over wreck of a forest and reasoned out a plan of logging. We would take out only the matured trees first, and come back later for other trees, which would grow more rapidly under his plan of culture than they had before.

Desiring the best counsel, he wrote to Washington a few years later and requested the new Federal Forest Service to send a man to look over his holdings. The Government Forester, after studying Mr. Pratt's methods for a day, acknowledged that the practical woodsman had already developed the best methods of timber culture for his white-pine holdings. Mr. Pratt has kept abreast of the foremost in forestry ever since.

At his little sawmill he recently showed Federal foresters how pruning converted the butt log from knotty lumber worth $20 per thousand to clear lumber worth $60. He has also found that his hardwoods mixed in with the pines yield a good profit when cut into apple-barrel staves.

He has a stand of white pine about 40 years old, which he thinned some years ago. The trees are 8 to 12 inches in diameter. They have been pruned for 16 feet up, and clear butt logs are forming. In 20 years more a cutting can be made. In contrast, he shows a plot of the same age which had been left without thinning or pruning. The trees are badly crowded, only about one-half the size of the others, and it will be a great many years before they will make even knotty lumber.

RESEARCH ON THE HABITS AND RELATIONSHIP OF WILD LIFE

(Continued from page 8)

RESEARCH ON MAMMALS—INVESTIGATIONS AND REPORTS

More extended field work was conducted than has been possible for several years, and many places throughout the country have yielded specimens of mammals and data regarding their distributions, habits, and relationships. Specimens numbering more than 1,500 were identified for institutions and individuals representing 22 States and one foreign county, and included many studies to determine the kinds of animals involved in economic problems. Interchange of materials needed for special study comprised 490 specimens borrowed from seven institutions and 290 loaned to 11 institutions in eight States and one foreign country. Investigators thus provided with material for work on research problems represented 16 States, Alaska, and three foreign countries.

A study of the ranges and relationships of chipmunks undertaken some years ago was recently completed, and the results embodied in a report issued in November as North American Fauna, No. 52. A full account of the life history and economic status of the grasshopper mice also was issued in November as a technical bulletin (No. 145) of the department. In co-operation with the State College of Washington, a report was published by that institution in December on a provisional list of land mammals of that State, the senior author being a biologist of this bureau. The information presented was based primarily on specimens and notes acquired by the Biological Survey and co-operating institutions in work conducted under the field leadership of the senior author. Progress also was made on studies of the mammals of Lower California, and a taxonomic revision of the group of the mountain lions was brought nearly to completion.

Studies were made of the game resources of the Southwestern region, including deer, antelope, mountain sheep, and various upland game birds. Attention also was given to the economic relationships of predatory animals and to species of value as fur producers.

DEER INVESTIGATIONS

Co-operative studies of deer with the State Game Commission of Pennsylvania were continued to ascertain the cause of lowered vitality and losses among these valuable game animals. The fact-finding committee appointed by the commission, which by request included a representative of the Biological Survey, who served as chairman, has completed a series of reports based on field and laboratory investigations, including feeding studies. Much new and important information was obtained as a result of this work, and the reports are now in the hands of the commission for publication.

The condition of deer at many other points has also been studied by representatives of the bureau in gathering data regarding their abundance, availability of food suplies, and their diseases and parasites. Further study was made of the deer herds on the Kaibab Plateau, Ariz., their available food resources, their range requirements and the effects of their browsing on the forest. Methods of hunting to reduce excessive numbers, and of capture and transportation for restocking depleted areas, also received attention.

ELK IN WYOMING

Studies of the Southern herd of elk in the vicinity of Jackson Hole, Wyo., have been continued and results of increasing value obtained. The studies include details of life history of the elk, the effect on them of predatory animals, their range and feeding requirements, and other factors affecting their well-being. When it was found that their feeding upon certain plants was responsible for lesions inducing necrotic stomatitis and causing severe losses, experimental studies were undertaken in co-operation with the Bureau of Plant Industry to determine means of eliminating such plants or of harvesting them at a season when not injurious. Assistance in the study of disease conditions was given by the Bureau of Animal Industry. An article on epizootic diseases of elk, prepared by the field specialist of the Bureau of Biological Survey and published in the Journal of Mammology, in May, 1930, summarized the important results obtained.

Upon request a report on the work was submitted to the Elk Commission. Co-operation has been continued also with the Forest Service of this department, the National Park Service of the Department of the Interior, and the State Game Commission of Montana in studies of the Northern Yellowstone herd. At the request of the Yellowstone Park Boundary Commission, a special study, under the leadership of a bureau representative, and participated in by the Forest Service, the State Game Commission of Wyoming, and the National Park Service, was made of game conditions in the upper Yellowstone-Thorofare region, with particular reference to elk and moose and their migratory movements.

Detailed studies also are being made of the plants upon which the elk feed, and of those they consistently avoid. The experiment station of the University of Wyoming is assisting in chemical analyses to determine nutritive properties and possible poisonous or other deleterious qualities of these plants.

Careful studies also are being made in the Jackson Hole region of the moose, deer, and antelope and their general ecological relationships.

RODENT ECOLOGY

Interest in wild-life research in the Southwest is increasing steadily as the value of the work conducted on rodents and other small mammals during the past several years is coming to be recognized. There has been a notable strengthening of the work with co-operating institutions, and further expansion is in prospect. A recent conference was held to consider the unification of research activities along these lines by the Universities of Arizona and New Mexico and the agricultural colleges and experiment stations of these States, the Forest Service, the Bureau of Animal Industry, the Bureau of Entomology, and the Bureau of Biological Survey of this department, the National Park Service and the Bureau of Indian Affairs of the Department of the Interior, the Carnegie Institution of Washington, including its desert laboratory near Tucson, Ariz., and the Game and Fish Commissions of New Mexico and Arizona.

Studies have been continued on experimental inclosures on the Santa Rita range reserve and at a number of representative points in Northern Arizona of kangaroo rats, rabbits, prairie dogs, porcupines, and other rodents in relation to range forage production, to erosion and soil working, to natural seeding, and to planted seeds of forest trees.

Reports were prepared for publication by the field representative of this bureau working on the project summarizing some of the important data and conclusions of the following subjects: Ecology and life history of the porcupine as related to the forests of the Southwestern United States; methods of determining the effect of rodents on the range; and rodents as factors in soil formation and modification.

BIOLOGICAL RESEARCH IN FOREST WILD LIFE

Research by the Biological Survey on the relation of birds, mammals, and other vertebrates to forest production was begun during this year in accordance with provisions of the recently enacted McSweeney-McNary forestry research legislation. A very large amount of work in this general field had been done previously by naturalists of this bureau, and the results afford a good basis for starting the new work. In expanding the field two additional biologists were added to the staff to devote their entire time to experiments and investigations relating to animal life on forested areas, including geographic distribution and observations on life histories and general habits. Their studies cover the seasonal occurrence and activities of birds and their migratory movements with direct reference to their beneficial or harmful relations to the forest and the value of certain species of birds and mammals as game. Facts that operate to increase or reduce wild-life population are noted, as well as the natural and artificial conditions necessary to maintain numbers sufficient for recreational purposes, and to provide profitable use of forest lands for game production without undue interference with the seeding, growth, and utilization of trees, forage, and other forest products. This includes study of the relationships to livestock of big-game animals, such as deer, elk, and moose, and means of increasing the game-carrying capacity without detriment to legitimate livestock interests.

Experimental plots have been established at favorable points on the forests to determine the effect of rodents and other animals on growing plants and in distributing or destroying seeds of forest trees and forage plants either in natural seeding or in planted areas. The relation of denuding and burrowing species to soil formation and working and to water run-off and erosion constitutes an important feature of the investigation.

Studies are made also of the present abundance of species valuable as fur producers, their sources of food supply, and their relation to game and other valuable or harmless wild life of the forest. Exact information on the place of the fur bearer as a factor in forest economy, from the viewpoint of both possible beneficial and harmful qualities, is essential as a basis for administration and determination of the maximum profitable use of land and water areas in the forests.

BIOLOGICAL INVESTIGATION OF INJURIOUS ANIMALS

The biological investigations of injurious animals have been concerned for the most part with identifications for the benefit of bureau representatives and of co-operators engaged in rodent and predatory-animal control. Exact information regarding the kinds of animals actually responsible for damage to crops or livestock is essential in determining the control measures appropriate, and in intelligently planning efficient measures for affording relief to producers. Certain identifications help to safeguard species that occur in the regions involved but are not responsible for damage observed, or whose habits and relationships are predominantly beneficial. Information was furnished regarding the geographic distribution, habits, and life histories of species involved in control operations or about which questions arose, and included the preparation of maps of known ranges. The large reference collections and the extensive files of information assembled from field and laboratory studies and from published sources are indispensable and are constantly used by specialists of the bureau in making identifications and compiling information requested.

EXPERIMENTS WITH MOUNTAIN SHEEP AND MUSK OXEN

In co-operation with the Alaska Agricultural College and School of Mines experiments have been made near Fairbanks in the domestication of mountain sheep. Five animals were obtained from the Mount McKinley National Park in the summer of 1929, and these tamed readily and adapted themselves promptly to handling and feeding.

The appropriation for the fiscal year 1931 provides funds to be used in obtaining and establishing at the reindeer experiment station a herd of musk oxen with a view to their reintroduction into Alaska. They were formerly native to the Territory but were exterminated there many years ago. Before the close of the fiscal year an order had been placed with an experienced collector for the delivery of 34 head of the animals from Greenland. Additional land for their use at the reindeer experiment station has been set aside by Executive order.

REINDEER INDUSTRY IN ALASKA

Problems involved in the production of reindeer in Alaska have had the full benefit of research work. Crossbreeding experiments with reindeer and caribou have progressed during the year. Reports based on a study of the reindeer herd on the Nunivak Island Reservation show clearly an increase in size and improved conformation in the crossbred animals, resulting from the introduction of caribou blood, and increased vigor and ability to rustle for food and withstand the rigorous climatic conditions. Experiments are being conducted at the reindeer experiment station near Fairbanks to determine the proportion of interbreeding that gives the most satisfactory results preliminary to the selection of improved breeding stock for introduction into Alaskan herds.

The steady growth of the reindeer herds has emphasized the need for efficient herd and range management. Practical recommendations are made on the basis of investigations of the extent and character of the range, and of grazing practices essential to maintenance of continuous and profitable yield, for the benefit of those engaged in the industry and of Territorial officials responsible for land allotments and native herd supervision. At the request of the governor of the Territory, reindeer-production experts of the Biological Survey have been serving on an advisory committee engaged in working out plans and policies relating to grazing allotments and herd management.

Definite advance has been registered in studies of the nutritive value of the various lichens, browse, and other natural forage, and of grain, hay, and root crops produced by farmers in Alaska. In these studies carefully conducted feeding experiments are made and the condition of the animals is noted. In co-operation with the Bureau of Animal Industry thorough biochemical and vitamin studies are made of the feeds used and of the waste products of metabolism. Similar studies also are made of the chemical and physical character of the reindeer meat and its nutritive properties. In co-operation with the Bureau of Home Economics a leaflet (48) was issued in November, based on studies of the palatability of reindeer meat and of the methods of preparation that enhance its attractiveness as a food product.

Investigations of the life history and habits of warble flies have been prosecuted in co-operation with the Territory of Alaska, and the Bureau of Entomology of the department, to determine practical methods of preventing their injury to reindeer. The flies and their larvae cause much distress and disturbance to the animals and greatly reduce the value of the hides for leather and garment manufacture. Nose flies and other insect pests of reindeer also are being studied. The Bureau of Entomology has given valuable co-operation by detailing competent entomoligsts to undertake the fundamental studies of the biology of these parasites and of repressive measures. The conduct of these studies is very difficult because of the exigencies of reindeer handling on the vast Alaska ranges.

Representatives of the Biological Survey in Alaska have aided Canadian officials and investigators in their efforts to determine the suitability of great areas of range land in Northern Canada for reindeer production. Upon completion of a contract with Alaskan producers for the purchase by the Canadian Government of a herd of 3,000 reindeer and their delivery at an agreed time and place, arrangements were made for a representative of the Biological Survey to study practical features and difficulties encountered in starting the long overland drive. The observations made will be of value also in Alaska in connection with the transfer of herds to the vast unoccupied range lands of the interior, or for fattening and slaughter at points favorable for shipment and for the disposal of meat and other products.

A circular (No. 82), entitled "Improved Reindeer Handling," was issued during the year, to make available to the industry the results of investigations thus far conducted and to detail in a practical way the solution of problems in herd management, corralling, marking, recording as to ownership, feeding, breeding, slaughter, use of reindeer as draft animals, range use, and deleterious results of range fires and parasitic infestation.

THE LOUISIANA BULL FROG INDUSTRY

(Continued from page 11)

current is very swift and subject to annual overflow from some river, a few are found averaging the higher weights, but very few.

Frogs when disturbed plunge into the water with a leap, making a noise that can be heard a long distance.

The tadpole feeds upon minute plants, and the frogs are very fond of crayfish, young fish, fish eggs, herbs, snails, and insects. If kept in close captivity the old frogs will eat their own eggs and tadpoles. In breeding frogs, the eggs, tadpoles, and frogs must be kept in different pens. It is not known if this cannibalism is practiced in the open or not.

It is estimated that one female frog lays several thousand eggs, and to one not familiar with the many enemies that live upon the spawn and small frogs, it would seem that the country would be flooded with frogs, and that the market would be over supplied. This, however, is not the case, for the minute the egs are laid, their enemies, such as snakes, minks, coons, opossums, fish, turtles, alligators, and birds all begin to enjoy a meal of "egg roe." Even the crayfish enjoys his portion of the frog spawn. So it can easily be seen how it is that we still have a large and growing market for Louisiana frogs.

In our State there are certain communities where the people depend largely upon frog catching for a livelihood.

The frog catchers use a head light (carbide) which throws a strong light upon a certain spot. The catcher, through the experience gained in long seasons of this work, can readily discriminate between a frog's eye and that of an alligator or snake. These creatures lie in wait to take their toll of frogs and tadpoles.

When the fisherman has spotted his prey, he reaches down quickly and quietly, and rushes the wriggling, squirming frog into his shoulder pack.

From there the frogs are transferred to boxes or bags at the camp when the catch is made. Here they are dressed, and rushed to cold storage, or are sold alive, if the dealers prefer them that way. (By the term "dressed" is meant that the heads are cut off, entrails removed, but skin left on.)

Today Louisiana frogs are marketed in practically every part of the United States, from coast to coast, and from the Gulf to Canada, and even in Canada. The fastest express trains are used in rushing the product to market, and rigid instructions as to re-icing, repacking, and handling in transit, as well as to quick delivery, are urged upon the express company under threat of heavy penalties if loss is incurred.

Frogs are considered a very fine substitute for meat, and many epicures regard frog legs as the height of gastronomic delight. They are prepared for cooking by removing the skin, cutting in four parts, (which leaves a piece of back bone on each fore and hind leg), making them ready to be fried or broiled. Some people like them baked whole, or stewed, or made into the famous French "Court boullion," with Creole seasoning.

The frogs' skins are used to make a fine glue, and the heads and entrails are used for fertilizer. Thus practically all of the Louisiana frog can be used in some valuable and practical manner.

Lee-Rogers Chevrolet Company, Inc.

S. J. ROGERS, Manager

SALES CHEVROLET SERVICE

FOR ECONOMICAL TRANSPORTATION

MONROE, LOUISIANA

SECRETARY WILBUR SAYS CONSERVATION IS CHIEF TASK OF THE INTERIOR DEPARTMENT

(Continued from page 17)

the Indian's person, through the gradual break-up of the old reservation system; (2) modern business methods and tools, such as the corporation, joint stock association, or trust, must be applied to the handling of his property.

As regards the Indian's personal welfare, an encouraging start has been made this year. A 30 per cent increase in appropriations, about $5,000,000, was secured, effective, however, only since July, 1930. The new Indian Service administration had to use, its first fiscal year, the machinery and money available, and only now can embark on a program of its own planning.

The need has been pointed out for legislation on law and order on Indian reservations. Jurisdictional questions between Federal and State governments are badly confused. The Federal Code in 1910 gave Federal courts jurisdiction over eight major crimes committed on Indian reservations. Other crimes are in an uncertain border class where many States decline jurisdiction and the Federal courts have none. Four solutions have been considered: (1) Submission of reservations to State criminal laws to be applied in State courts; (2) a special Federal code to be applied in Federal courts; (3) State laws in Federal courts; (4) use of tribal courts on some reservations.

EDUCATIONAL SYSTEM IS SUBJECT OF STUDY

The present Administration is much interested in the subject of education. The nature of the Federal Union, however, makes it constitutionally impossible for the Federal Government itself to engage in education except in such cases as training officers for its Army and for its Navy, educating the wards of the Government, such as the Indians and the natives of Alaska, and assisting through the District Government in the educational program of the Capital City.

The important advisory committee on education, made up of leading educators of every field, has as its function a determination of the proper relation of the Federal Government to education in this country. It is considering the proper educational activities of the Government itself, the question of subsidies by the Federal Government to colleges, and the field of subsidies for education in secondary and elementary schools. To those who feel that the time has come to crystallize the Federal relationship to education the memorandum of progress by the National Advisory Committee on Education, covering the field of Federal relation to education, will be illuminating; the divergence of views as to the relationship of Federal and State governments in this field shown by this able and representative committee, and the earnest effort being made to solve these questions, indicate that this problem is far from being ready for a final crystallization. No more important study of governmental functions is going on at the present time.

Now is the time to complete the national park system by the transfer, where it can be done, of Government lands containing natural features of outstanding value to the Nation; also several of the larger national parks should have their boundaries revised in order to include adjacent territory which contains features that naturally belong to them.

Particularly important are the proposals to add to the Grand Teton Park a portion of the Jackson Hole country and the region between it and Yellowstone Park. Another urgent project contemplates moving the eastern border of Mount Rainier Park to the summit of the Cascades. The importance of acquiring private holdings in all the national parks is again emphasized. Until this is done we cannot be wholly effective in the protection and administration of these areas.

The Bureau of Pensions, in being transferred to the new Veterans' Administration, takes with it over 70 per cent of the annual Interior Department appropriation. While it was a part of this Department its total expenditures exceeded $8,000,000,000. It annually cost more than the estimated cost of Hoover Dam and the all-American canal. The obligation of the people to their veterans is none the less real because of the size of the burden, but it will be helpful to have the Pension Bureau grouped for the first time with the other veteran relief organizations (the Veteran's Bureau and the Soldier's Home) so that the total annual cost of the care of our veterans, amounting to the largest single item in the Government Budget, may be dealt with on a scientific and uniform basis.

ECONOMIC DEVELOPMENT OF ALASKA FORESEEN

The various problems of Alaska are being studied with a view to assisting the economic development of its immense resources and readjustment of its administration so the Territory will be self-supporting and prepared within itself to move forward in its development as the other Territories of the United States have in the past. Alaska's abundant pulpwood—enough to supply 1,000,000,000 board feet each year on a sustained yield—still lies idle; the forests are dying of old age; 450,000 horsepower of cheap water power near tidewater is going to waste.

Accessibility is the greatest need; an international highway from Seattle to Fairbanks is being pressed vigorously and is a real necessity if Alaska's resources are to become available. Increased industrial training of the Eskimos and Indians will be pressed so these natives will be gradually altered from wards of the Government to producers of export commodities.

One thousand two hundred and eighty reindeer have increased to over 600,000 in 40 years. A great meat export and by-products industry awaits development by capital, and this will be actively promoted.

INDUSTRIAL PROGRESS FOR LOUISIANA

(Continued from page 9)

very profitably brought to the surface and put on the market. If the present known facts with reference to these minerals in Winn Parish, as well as other parishes throughout the State, were authentically heralded to the world, Winnfield and vicinity would very quickly take on new life, activity, and prosperity.

The frozen and congested north and east are anxiously awaiting such authentic news. Captains of industry with untold wealth have their eyes on the sunny south. In fact their scouts are already in this field.

The reader can at least vizualize the bigness of the job now being earnestly tackled by the Louisiana Creative Industrial and Agricultural Association. We are daily receiving inquiries, even though with scant publicity so far, from far off Cuba and other distant points. We are rapidly becoming Louisiana's clearing house for authentic information industrially, chemically, and agriculturally. The reader also surely can realize that when this Association is in full motion how much he, or she, will be benefitted by these plans of progress and development, and therefore, readily become a member of the Association by contributing the modest sum of six ($6.00) dollars per year.

Last, but not least, it would be a long step forward in solving our local unemployment.

Therefore, the Association strongly urges every progressive citizen to become a sustaining member of the organization.

Temporary headquarters have been opened at 216 Ricou-Brewster Building, Shreveport, Louisiana.

Mr. H. S. Lonergan, progressive member of Caddo Parish Police Jury, has been elected president of the new Association, and will be pleased to answer any and all inquiries.

Dupont Announces Policy to Restore Outdoors for All

The duPont objective is a better outdoors. Its policy will be to help find ways and means of achieving that end satisfactorily to all parties—the land-owner, the sportsman and the general public.

Thus A. Felix duPont, vice president and general manager of the Smokeless Powder Department of the E. I. duPont de Nemours & Co., Inc., of Wilmington, Delaware, summed up the policy of the company in an announcement made public today.

"The real movement now under way in this country is not concerned with game restoration alone, for it embraces also the conservation of non-game species, forests, park waterways, fish —in short the great outdoors," Mr. duPont said.

"America has the environment to raise an abundant game and fish crop, the means to pay for it, and the love of sport to assure that successful production will be rewarded.

"There are many conflicting theories as to how to bring these factors into productive relationship with each other. The duPont Company does not know which theory is best, but it proposes to aid in bringing the most promising ones to the test of experience. The public can then decide for itself.

"There are some—but not enough—biological facts available on game and fish production. We propose to assist in making these facts known; to promote research for other facts needed, and to help in training men to apply them.

"From a careful study of conditions in this country it is apparent that game conservation is of vital interest to a large percentage of our population. There is a widespread demand for constructive effort to restore the wild life resources. Recognizing this, the duPont Company has builded and is maintaining its own field force to advance this important work.

"The lack of certainty as to the best method of proceedure has led to the adoption of our company's policy. The development of a better outdoors is primarily a civic interest and responsibility shared by all. In adopting this policy we believe we are taking the best and quickest way to advance this worthy cause," Mr. duPont concluded.

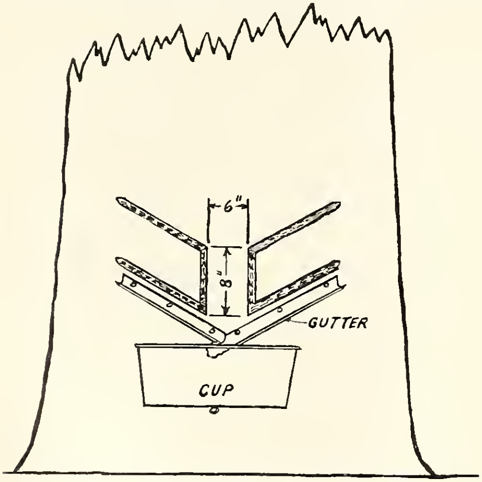
Seth Gordon, president of the American Game Association, in commenting on the announcement said: "This is one of the greatest forward steps taken in conservation. If more of our outstanding business firms will take like action the success of the conservation movement is assured."

FOREST BY-PRODUCTS

(Continued from page 10)

freshened about every four weeks by removing a thin shaving (about one-eighth inch thick) on the upper side of the cut, when the storax is collected. This shaving of wood more or less soaked and coated with storax may in many cases be worth extracting. Such shavings, however, should probably be kept separate from the cleaner storax, and perhaps sold with the trash that is strained out of the gum when it is cleaned. The producer usually accomplishes the cleaning of the gum by heating it in a double boiler and filtering it through cheese cloth before it is shipped.

"Care should be used in selecting the trees to be wounded for storax production. Cuts should be made low on the butts or on the large branches. Inferior trees with decayed hearts or crooked trunks, which will not make good lumber, will, however, often serve well for storax production. Where possible the collection of storax should be made in advance of a lumbering operation so that the scarred trees need not stand for any great length of time exposed to insect or fungus attack. Where trees are scattered and not highly valued for lumber, farmers, high school boys, or other workers may be able to carry on small-scale operations during their spare time, for storax is purchased in lots as small as four pounds each. The collected gum should be kept as cool as possible to prevent or reduce fermentation. Shipments can be made in friction-top tin cans.



SUGGESTED METHOD OF CHIPPING RED GUM FOR STORAX

"Among the hardwood species cut in the South, Red Gum ranks second only to the oaks. About 25 per cent of the total annual cut of hardwoods in the United States, and two per cent of the total cut of all species, is Red Gum. It should, therefore, be possible to combine storax production with the cutting of some of the large tracts where Red Gum comprises 15 to 50 per cent of the cut.

"The yield obtained in Louisiana from the horizontal wounds previously described averaged 2.5 ounces a year from each tree. The highest yields are said to be obtained in the warmer regions and seasons. Total girdling of trees gave a yield of only 1.5 ounces for each tree, which shows that normal tree health and vigor play an important part in securing a sustained yield.

"More experiments to determine optimum conditions for storax production are needed and until more is known about all angles of the problem great care should be taken not to damage valuable timber. With due precautions taken, however, additional revenue can be gained from Red Gum forests through storax production, especially since over 40,000 pounds of storax has been imported annually for the past two years. The import prices for storax have ranged from $0.40 to $3.00 per pound for material of widely varying quality."

The Division of Forestry will gladly cooperate with land owners in the State of Louisiana with reference to the development of the storax industry, and in addition will be glad to furnish producers of storax the names and addresses of the buyers for various industries in the United States.

WINTER FEEDING OF BIRDS

(Continued from page 4)

Suet, sunflower, and other seeds moulded into a ball and encased in a loosely-woven string bag provides an excellent feeding device. (Figure C). This bag should be suspended by a string from a tree limb. Because the bag swings, the English sparrow, considered an undesirable, cannot hang on and eat while the other birds can and do enjoy this feast.

A decorative insectivorous bird shelter for use near houses is shown in Figure H. A metal disc should be placed around the pole to prevent cats from attacking the feeding birds.

Missouri's game and insectivorous birds mean much to the state. They need protection by every man, woman, and child if they are to be preserved for posterity. When other feed is not available, grain can be procured by making application to the rural route carriers, postmasters, or to the district game wardens.

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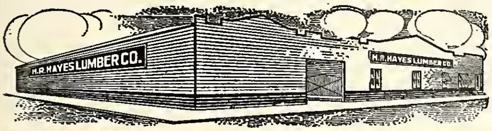
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The Needs of the Nation's Engineers

An address by Dr. Henry Mace Payne, Consulting Engineer, to the American Mining Congress before the banquet at the 25th Anniversary of the Illinois State Geological Survey.

The undeveloped natural resources of a State are her industrial currency for the future. In their development, the Geologist plays a significant part; and his relation to our national prosperity is that of the banker; since having located and defined these resources, their production through the application of labor having created wealth, he is the custodian of the State's working capital.

It is the business of a Geological Survey to ascertain the facts and martial them in such intelligible form as will yield most readily to industry, not only the technical but the practical information upon which investment and development are predicated.

Not until this ground work has been laid does the engineer begin to function. Not until this knowledge has become available can the engineer, through topographic maps, stratigraphic charts, stream flow and petrographic study give wise advice and complete service.

No matter how rich a country may be in mineral resources it must remain a purely agricultural country, (and no purely agricultural country is a prosperous industrial country), without diversified production of mine and mill and farm and factory.

It is true that in many cases the mineral development of one State may furnish a greater prosperity to an adjoining State through natural trend of commerce, but we have learned that when one suffers, all suffer; and when one prospers, all prosper. No country and no State ever became rich through the production of raw material alone.

The present economic situation in the United States is a specific illustration. The work of the several Geological Surveys, in the definition of our mineral resources and the economic factors which underlie their development, has been basic, and without it vast areas of the country would still be barren.

The first thing which approaching and expanding industry requires is a topographic map, upon which may be predicated surface arrangements, transportation and communication. Following this, water suply and flow, structural maps and pure geology.

The advance of American civilization is replete with illustrations of the services effected by the Geologist, without whose praticular sphere of knowledge inevitable losses must ensue. The stability or collapse of great impounding dams rests not basically upon their structure but upon the nature of their foundation.

The location of railroad rights of way and of the great arteries of vehicular traffic are now determined after geological reconnaissance. Sources of water supply, and of fuels,—solid, liquid and gaseous,—of railroad ballast and road surfacing materials, the raw materials of the great chemical industry in its myriad ramifications, all revert to the Geologist for his advice.

Most fortunately, in recent years, the State Geological Surveys have, for the most part, grasped the trend of industry, and have broadened the scope of their work to include industrial economics, and we now see new centers of production and distribution spring into being as the result of the Geologist's labors.

In this great work the Illinois State Geological Survey, whose 25th anniversary we celebrate today, has an enviable record. The roll of its State Geologists is an honorable one. Their publications and reports, bulletins and technical papers, investigations and research conclusions, constitute an enviable portion of America's Geological Literature.

Created to furnish technical information, to aid engineers and industries, and to promote the information of the state's citizens about their resources, the Illinois State Geological Survey has functioned admirably and has made available a vast amount of information about the non-metallics, the coal, the pig iron, and various other natural resources and industries, whose development to date has placed the State in a position of industrial leadership in America.

In safety work in coal mines; in the development of the oil and gas industry; in service to the ceramic industry; in the utilization of agricultural limestone; in a study of potash possibilities; in soil survey and water resources; in topographic and soil mapping; and in co-operation with other state bureaus, and with the military and naval departments of Illinois, as well as to her municipalities, her railroads and her general industries, the Illinois State Geological Survey has, from its inception, afforded a spirit of cooperation and helpfulness, which might well be emulated by science and industry generally throughout the United States.

Just Ahead!
A Greater Prosperity For
LOUISIANA

IN RECENT years Louisiana has forged to the front in agriculture, commerce, and industry. Here are a few of the reasons:

—the natural gas production for last year was 262,680,782,000 cubic feet.

—the annual production of crude oil exceeds 20,000,000 barrels.

—the annual production of carbon black is in excess of 127,000,000 pounds.

—it ranks first in the production of primary hardwoods and has more than 1,000,000 acres of uncut virgin timber.

—as a fur producing state, it far outranks Alaska.

This exceptional development naturally has brought a steady increase in population.

Tomorrow—the years just ahead—will see a "GREATER LOUISIANA" - - - more industries, more commerce, more people.

The United Gas System serves an important section of this rich territory with Natural Gas, the economical fuel for home and industry.

It accepts the responsibility of providing additional facilities to assure the new homes and industries that will enrich this state a dependable Natural Gas service.

This is expressed in a tangible way through our extensive expansion program....calling for expenditure of millions of dollars....now well under way.

Our prosperity depends on the growth of this state....yet it must precede, NOT FOLLOW the increased demand for Natural Gas service.

We are building ahead of Louisiana's growing needs....and serving its present Natural Gas requirements.

UNITED GAS SYSTEM
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Supply of Spruce Pulpwood Depends on Forest Management

With careful forest management, owners of spruce timberlands in New York and the New England States can maintain them indefinitely as one of the chief sources of pulpwood for the paper industry, says Marinus Westveld, of the Forest Service, U. S. Department of Agriculture. Forty-three per cent. of the pulpwood now used is spruce. Favorable growing conditions of the Northeast make it possible to maintain and even to increase domestic production.

Improved practices in the protection of young growth at the time of cutting and in slash burning and fire prevention are probably of first importance, says Mr. Westveld, who is silviculturist of the Northeastern Forest Experiment Station. In mixed hardwood-spruce stands, "weeding out" the smaller, inferior hardwood growth which comes in after logging may be advisable. In some cases girdling the larger defective hardwoods is suggested to prevent shading the small conifers, though frequently the hardwoods are worth saving as a protection against windthrow and as a potential source of valuable timber.

"Five main types of spruce-fir forest—the spruce flat, spruce hardwood, spruce slope, spruce swamp, and oil-field spruce—should be considered in handling the spruce stands of the Northeast," says Mr. Westveld. "In recent years clean-cutting of these types of spruces has seldom been governed by consideration of the importance of advance reproduction, of the splendid recuperative power of these forests when rightly handled, or of obstacles to future productiveness such as windfall and fire. To reclaim these lands and to maintain the needed local supply of pulpwood. the forests must first be classified as to their productiveness. This should indicate whether spruce can be encouraged to predominate, or whether utilization limits should be broadened to leave hardwoods enough to make future operations profitable. Cutting methods, measures for protection of young growth, control of stand composition, and slash disposal should be adapted to individual stands."

Recent studies of the Northeast spruce stands have been published in Circular 134-C, Suggestions for the Management of Spruce Stands in the Northeast, which may be obtained from the Office of Information, U. S. Department of Agriculture, Washington, D. C.

Plea for Enlarged Game Area Mapped

Recommendations for an increase in the protected areas of the Russell Sage and the Rockefeller Foundation preserves in Southern Louisiana will be made to the Commission of Wild Life Resources of the United States Senate by Morris Legendre, secretary of the commission, upon his return to Washington within the next few days.

That announcement was made Friday upon the return to New Orleans of Mr. Legendre and J. B. Dauenhauer, director of the wild life division of the Department of Conservation from an inspection trip of the Louisiana coastal waters and the wild life preserves.

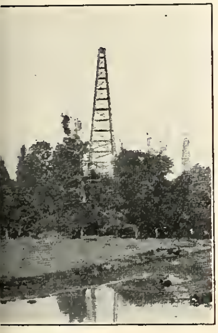
The secretary of the Senate committee came to study the matter of pollution of streams in oil sections of the State. It was reported that oil from the wells had destroyed the feed of the migratory birds. Director Dauenhauer said little oil was found in the streams. He said Mr. Legendre was much impressed with the preserves and said he would urge members of the commission to enlarge them.

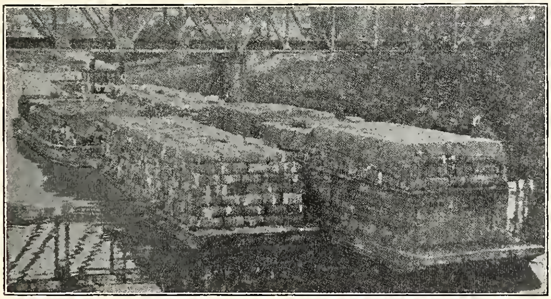
Reservoir Draining Fatal to Many Fish

Outraged sportsmen have demanded an explanation from the State Fish and Game Commission of why "thousands of trout were allowed to die when the Mountain Dell reservoir in Palkley's Canyon was drained."

Leading sportsmen charged that no especial effort had been made to protect the fish. They said persons had visited the reservoir when the water was practically gone and scooped up thousands of trout. One machine, it was stated, carried away 400 fish.

Commission authorities said the reservoir was drained primarily to remove chubs.





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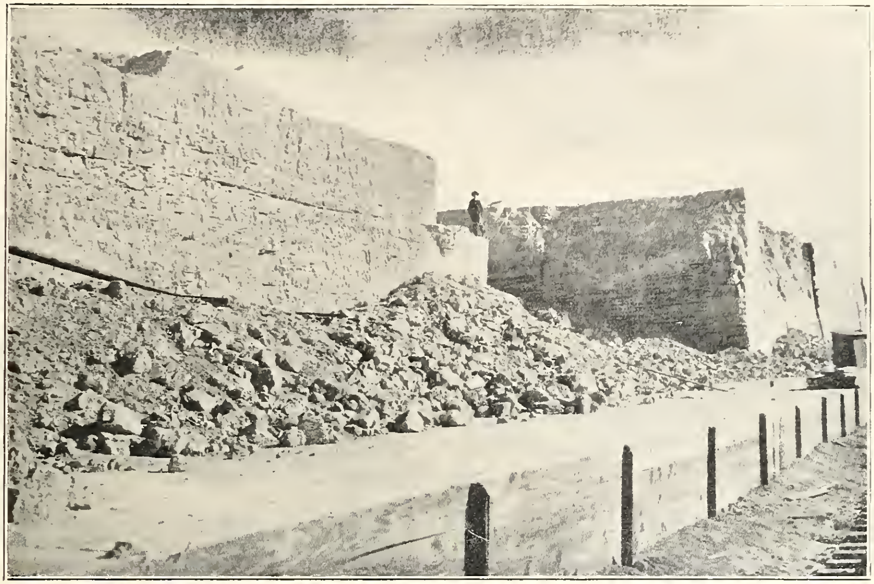

The sulphur from the mines in Calcasieu Parish, after it is pumped from the bowels of the earth in liquid form, is piped to great bins where it solidifies. After days of cooling, when the sides of the bin are knocked away, a solid mountain of sulphur, 99.8 per cent pure, dazzling yellow in the sunlight, is exposed to view.

Bag Limit Warning is Given Hunters

Duck and geese hunters were warned recently by J. B. Dauenhauer, director of the enforcement division of the department of conservation, that they would only be permitted to have in their possession the daily bag limit allowed for each individual.

It has been the practice of hunters to have in their possession many ducks and when questioned by game wardens they would say a number of friends were together on the hunt and the individual was transporting the ducks for the entire party.

Conservation officials say in many cases it was found the migratory bird law had been violated. Under the new ruling if a hunter is found with more than the bag limit he will be arrested for violating the federal migratory bird treaty statute.

The order of the Louisiana conservation department was sent out upon receipt of a letter from W. C. Richardson, acting chief of the bureau of biological survey of the United States Department of Agriculture.

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Michigan Lakes Which Lack Oxygen Destroy Choice Fish

Lakes which "lose their oxygen" are receiving the attention of the Michigan Department of Conservation because choice game fish have been suffocated in large numbers, according to a statement by the department. Decomposition of vegetation absorbs a great amount of oxygen at times when the oxygen content of lakes is at low ebb, it is stated.

Driven up by lack of air, thousands of choice game fish, bass, blue gills, pike and perch, suffocated when Jones Lake, a 25-acre lake almost within the Lansing City limits lost its oxygen.

Indications of fish suffering were noticed first when a number of adult fish were found dead and countless thousands of last year's hatch, principally speckled bass, warmouth bass, and golden shiners on the surface of the water gasping for air.

Although of the opinion that the condition was due to lack of oxygen, the Department of Conservation made a thorough examination of the lake, taking samples of water at several points in various depths. It was found that the lake contained no oxygen except a slight trace at the surface. The temperature ranged from 85 degrees at the surface to 58 degrees in 20 feet at one point. An outboard motor boat was placed in the lake to disturb the water and alleviate the condition if posible until atmospheric conditions changed.

Reports of this nature reach the Department every season from a number of sources. These reports are received generally following the Spring break-up when the ice leaves the lakes, and later following the spawning season when water temperatures are high. This is generally found in the smaller lakes which have no surface inlet or outlet.

The decomposition of vegetation absorbs a great amount of oxygen from the water at a time when the oxygen content is at a low ebb. High winds and rain usually relieve such conditions immediately.

A report last Spring from Clark Lake in Tuscola County that all fish were dying, was found by the Institute for Fisheries Research to have been the result of lack of oxygen. Other investigations of a condition of this kind have been found to be due to the same cause.

Gravel Brings High Prices

The 3,138,673 tons of sand and gravel produced during 1929 in Louisiana were sold for an average of 65 cents a ton, eight cents higher than the price generally over the country according to a report made public here recently by the United States Bureau of Mines.

The value of the gravel was $2,069,024, the report stated. The country as a whole produced more sand and gravel than in any preceding year on which figures are available, the report continued, giving as a reason the increased amount of highway construction and the wider use of ballast for railway roadbeds. The increase was shown in the face of a decline in the use of sand and gravel for construction.

The total amount produced in the United States was 222,571,905 tons, the report stated, with a value of $132,835,797.

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Animal Toll High

The season for killing rabbits, pheasants, 'possums and even skunks is always an open one as far as automobiles in Illinois are concerned. Automobiles, according to the State Department of Conservation, take a heavy toll throughout the year of all classes of wild life.

Rabbits, probably because they are the most numerous and have a weakness for stopping in the middle of highways to stare into the glare of automobile headlights, are the heaviest sufferers.

Some authorities estimate that the death rate of rabbits on highways averages a "rabbit a mile" for every bit of the state's 9,443 miles of paved highway.

Pheasants are among the most common of game birds to be killed by speeding autos, although a number of quail and other birds also meet death by flying into windshields, or the path of fast-traveling machines.

Skunks and 'possums also fall before the speeding wheels of automobiles. They are valuable for their furs but their loss to hunters is negligible.

Surplus Deer at Yosemite Park Taken Into Mountains

The problem of too many deer on the floor of Yosemite Valley, in Yosemite National Park, California, has been solved by park authorities. The surplus animals are being caught in the paddock and taken up to the higher mountain country which was almost depopulated of its deer at the time of the foot-and-mouth epidemic in California.

While it will be a long time before the deer come back in the higher regions as they were before the destruction during the epidemic, the plan of transporting some each year from the valley helps toward restoring natural conditions. At the same time it relieves conditions in the valley where the deer have become so tame and so numerous that the wild flowers were suffering seriously from their depredations.

In an endeavor to stop game waste, the State of Washington recently added to its game laws a statute making it a punishable offense for a hunter to fail to properly dress, care for and utilize his kill within 24 hours. The law calls for a fine of not less than $250 nor more than $1,000. —American Game Protective Association news service.

Federal Control of Pipe Lines for Gas Transmission Sought

Creation of the Federal Gas Pipe Line Commission for supervision and control of "the purchase, production, distribution, sale and (or) transportation of natural or artificial gas by pipe line agencies" is proposed in a bill introduced December 3 by Senator Arthur Capper (Rep.), of Kansas.

The Commission would consist of three members to be appointed by the President, by and with the advice and consent of the Senate. The term of office would be six years, the first members, however, serving respectively, two, four and six years.

The bill would require a certificate of convenience and necessity from the Commission before any corporation or person could engage in "the purchase, production, distribution, sale and (or) transportation of natural or artificial gas in interstate commerce in any State." In case an applicant has been in operation at least a year before the opening date of the legislative session at which the bill is passed, and continuously since, such facts would be prima facie evidence as to the public necessity of such operation.

Existing jurisdiction of State regulatory commissions is proposed to be protected by a section providing that "Nothing in this act shall be construed to in any way abrogate or restrict the jurisdiction of State regulatory bodies, or to take away from State regulatory bodies any supervision or control over gas pipe line agencies that they are now exercising or may have had a right to exercise before the enactment of this law, but this act shall operate only where State regulatory bodies are without jurisdiction."

The bill, Senator Capper stated orally, was prepared under the direction of Charles E. Steiger, general attorney for the Kansas Public Service Commission.

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